SEPTEMBER 30, 1933

Railway Age

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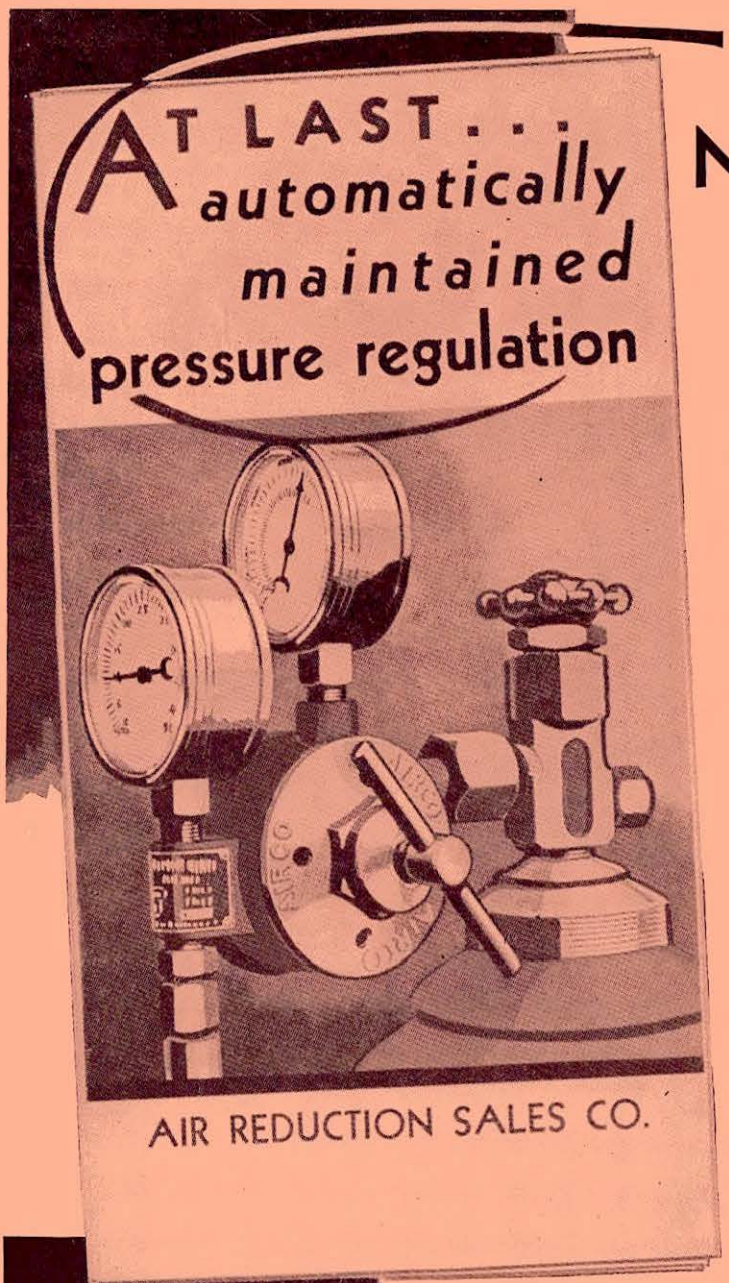
Patching An Old Rope With New Chain

"THE railroads cannot afford to buy things they do not need simply in order to make business better for other people. They are in no position to play the role of Santa Claus to any greater degree than they now do.

"On the other hand, the opportunities for wise investment in their own selfish interest may be much larger than is generally suspected. With the definite possibility that funds may soon be made available in considerable quantity for such expenditures, should not each railway searchingly explore the possibilities of every device and every form of modern equipment offered to improve the economy of operation — comparing the costs of such equipment with the operating and maintenance costs of present plant?

"One danger that should be scrupulously avoided, to use the language of a high government officer who is interested in the railways, is 'patching up old rope with new chain'. In other words, great care should be exercised in any repair program to avoid spending money on either cars or locomotives which are too old or obsolete to justify continued service."

The above are excerpts from the leading editorial in this issue entitled "Reviving the Capital Goods Industries."



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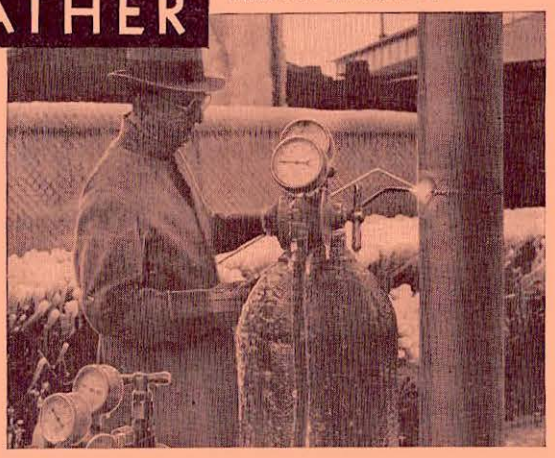

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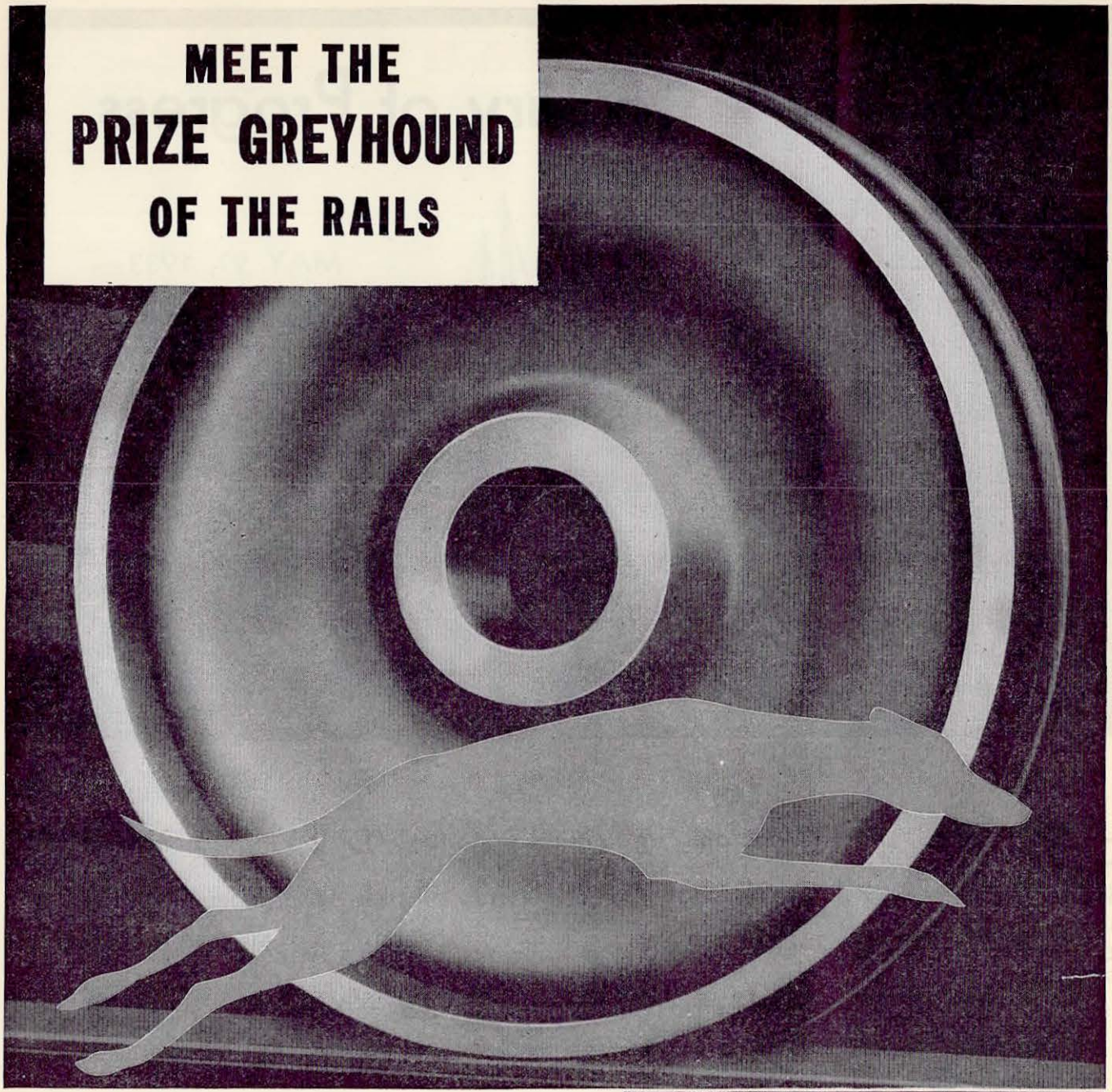

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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

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Tells how Delaware, Lackawanna & Western eliminated 12 street crossings in Elmira, N. Y., in 228 days.

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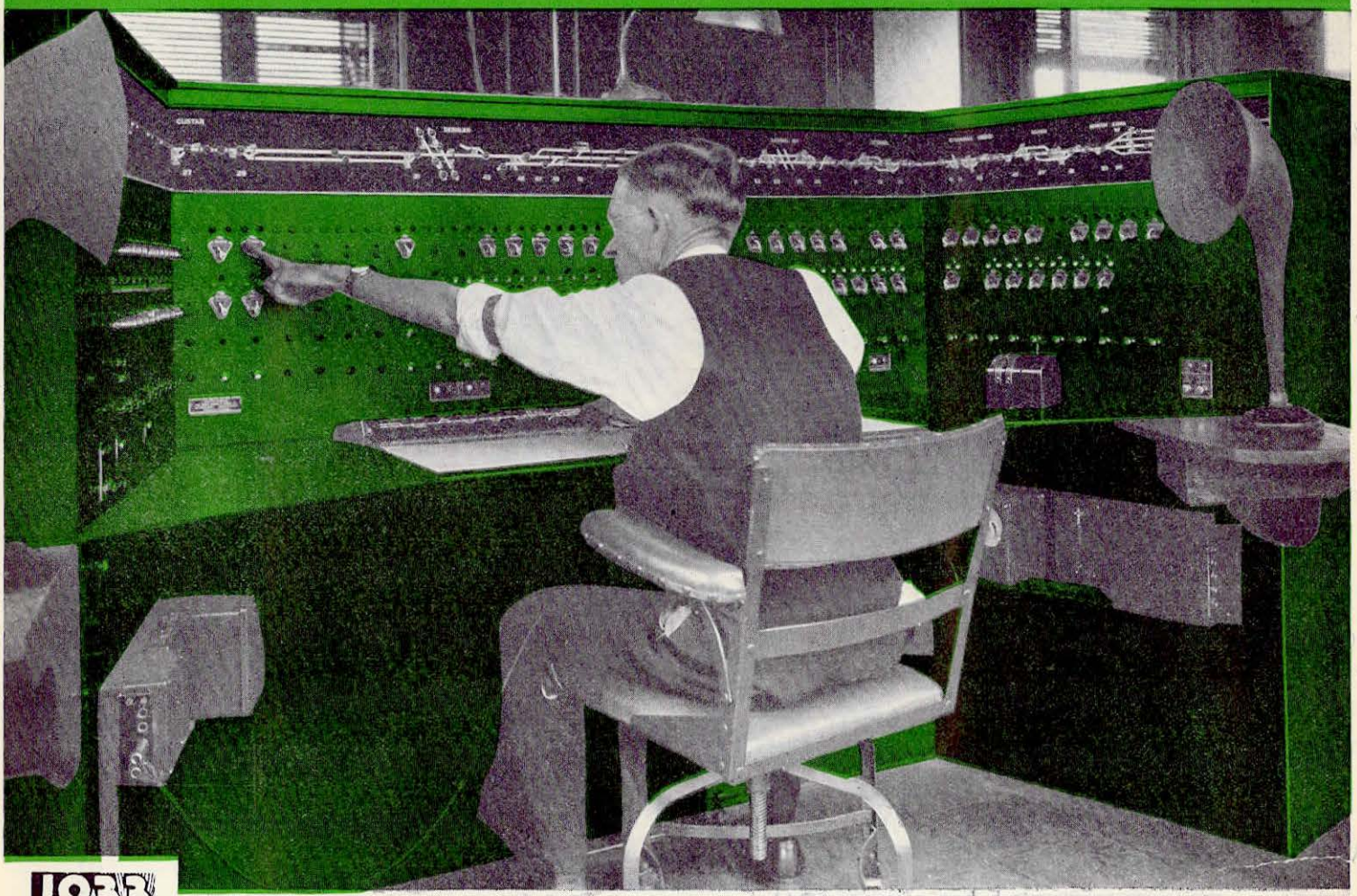
The New "TOOL"



1933
A CENTURY OF PROGRESS
CHICAGO
VISIT OUR EXHIBIT
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MEZZANINE FLOOR.
TRAVEL & TRANSPORT
BUILDING

Consider Signaling

As railroad traffic returns to normal certain operating problems will arise which can be dealt with most efficiently by the use of modern signaling facilities, for example, centralized traffic control. The first installation of this revolutionary method of directing train movements by signal indication over an entire division without train orders was placed in service in 1927. Other installations followed as the advantages of this system were demonstrated, but further progress was halted by the depression. This interval of inactivity has given opportunity to prove conclusively the merits of centralized traffic control, and to improve the equipment to a

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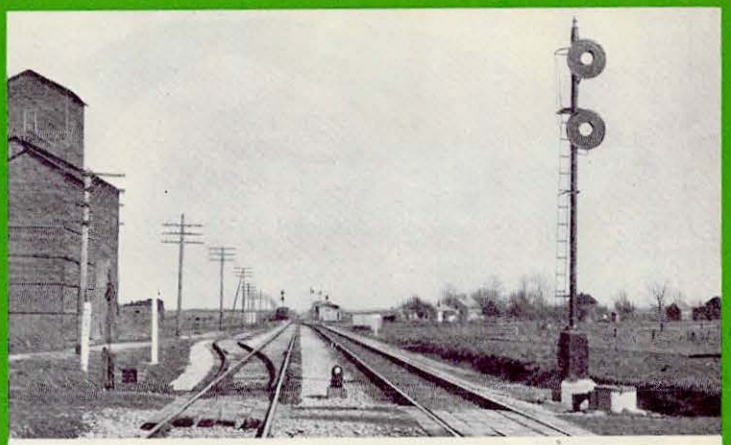
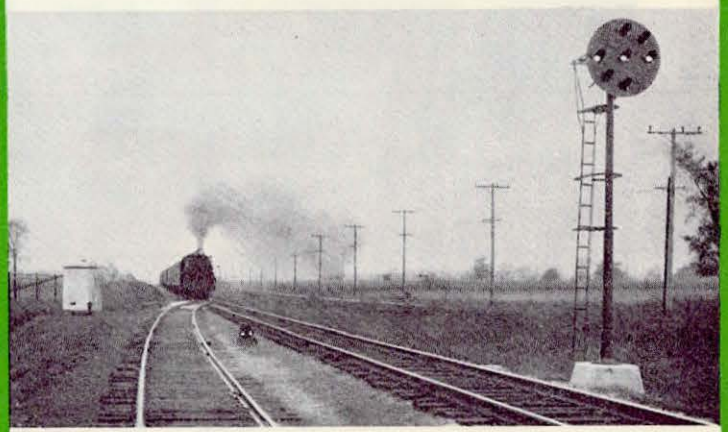
stage of efficiency and reliability of operation transcending standards previously established for signaling facilities. Thus, the railroads, now have a new "tool."

This new "tool" can be used effectively in meeting the requirements imposed by increases in traffic at a minimum outlay for additional trackage. Because of the facility with which it can be employed in the reduction of train delays, it is of especial advantage on single-track, particularly where train movements occur in peaks during certain times of the day or certain seasons of the year, and the investment in second track cannot be justified because of the limited periods during which such added trackage is of any benefit. There is no "guess work" as to results to be effected by centralized control because time-distance charts can be prepared to show present and future train movements.

However, the advantages of centralized control are by no means limited to single-track lines, for there are many extensive sections of double track which do not now, nor will for years to come, have a traffic which cannot be handled efficiently on a single-track, properly signaled. By reverting to single-track operation, it will be possible to save at least $1,000 per mile annually in the maintenance of one track, and where rail and tie renewals are far behind schedule, the abandonment of a track will effect even larger reductions in current outlay if action is taken now. The money that would be required to rehabilitate the track taken out of service will go far in paying for the centralized traffic control. There are thus several reasons for immediate investigations of the possibilities of centralized control on many sections of railroad.



Looking east toward end of double track at State Line. Wabash C. T. C. installation — Peru to State Line.



Eastbound Passenger train at the west end of Marion Siding. P. R. R. C. T. C. installation — Limedale to Ben Davis.

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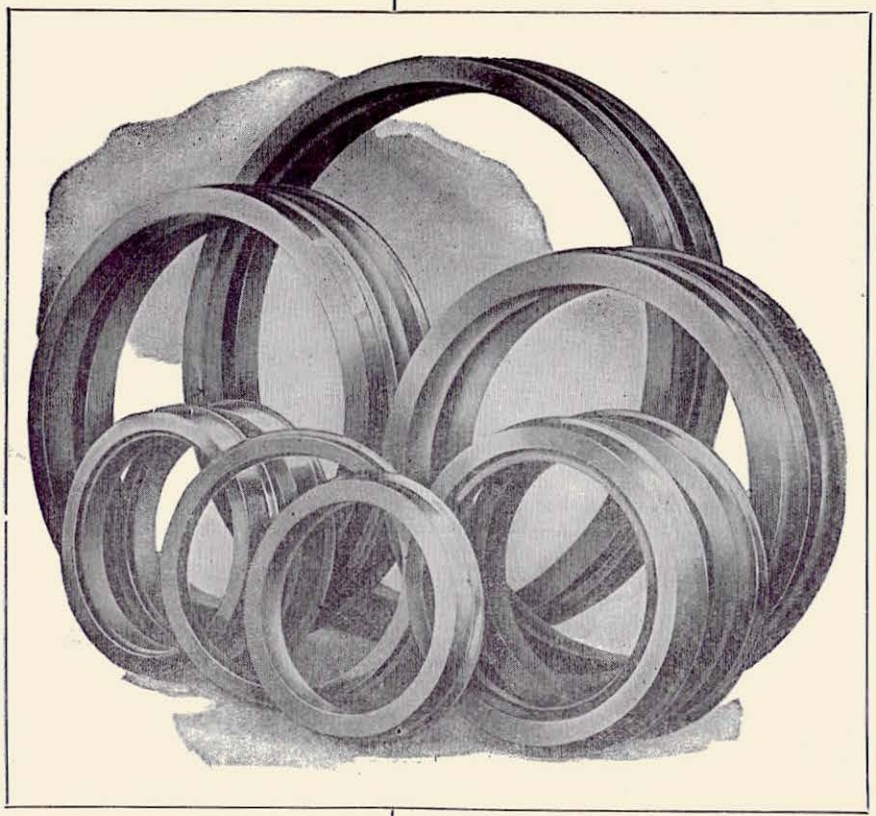

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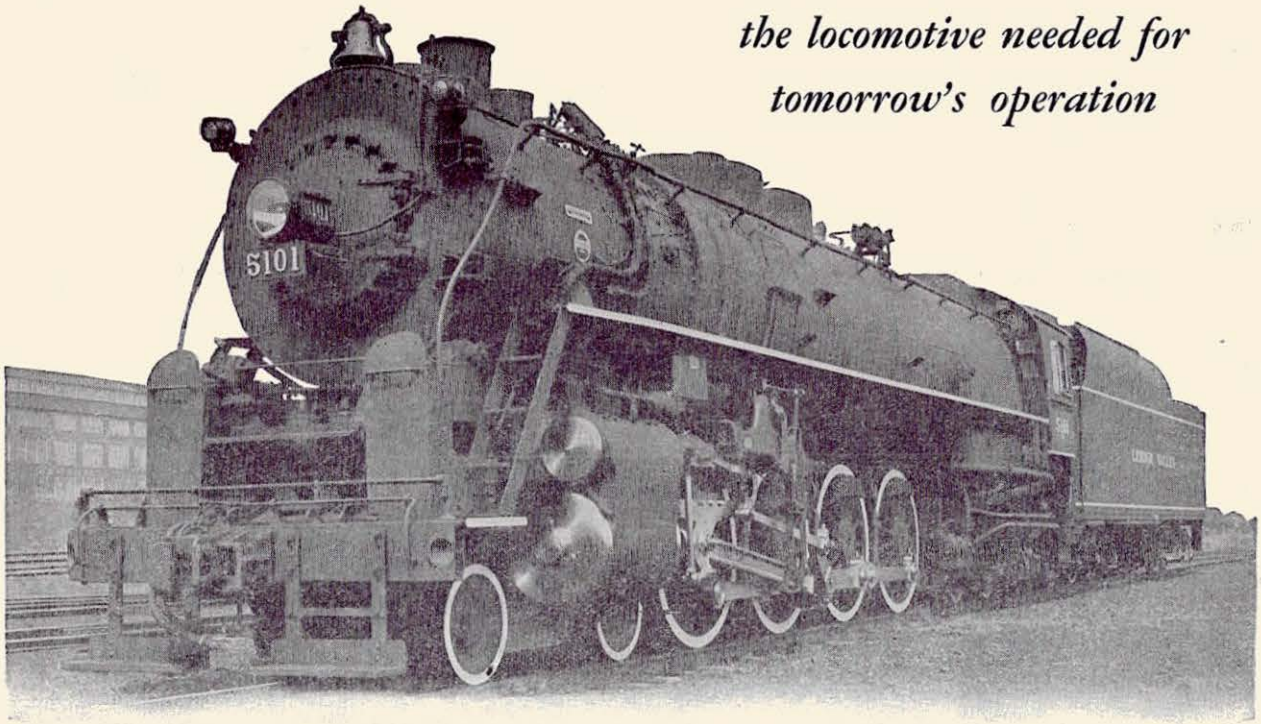

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The purchase of additional modern locomotives will return immediate savings sufficient to pay for the new power within relatively few years and leave a margin for increased earnings.

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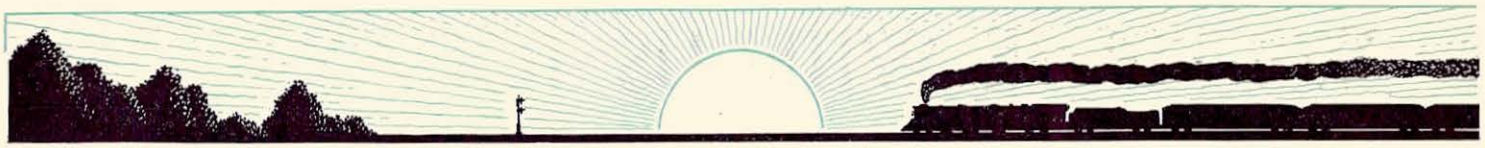

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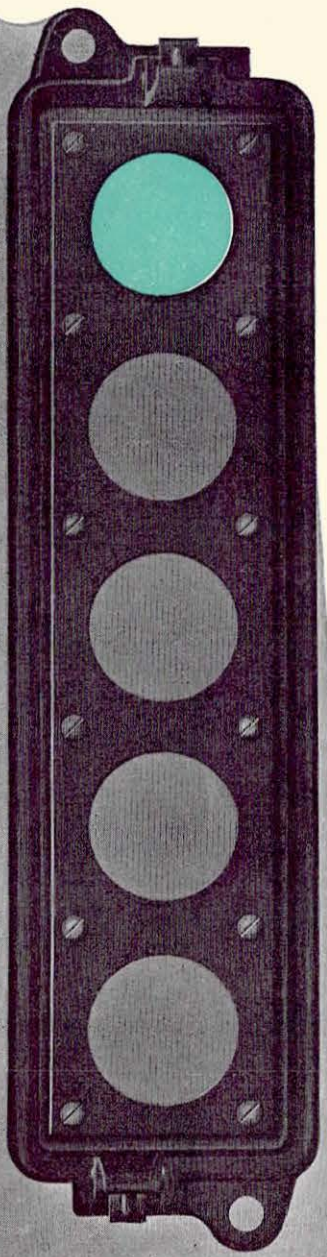

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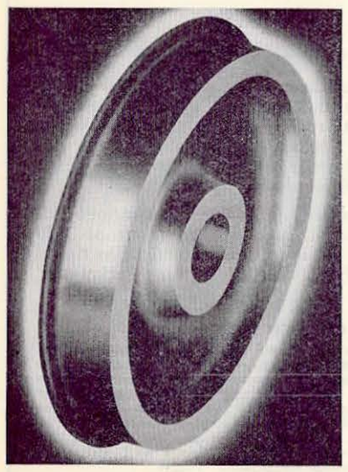

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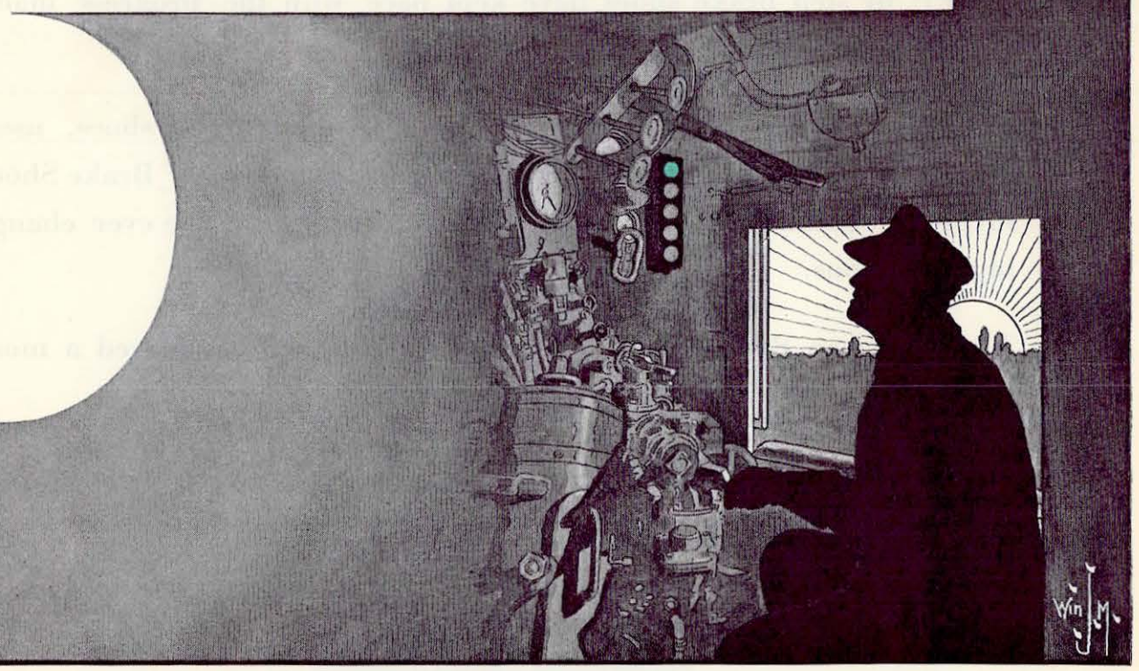

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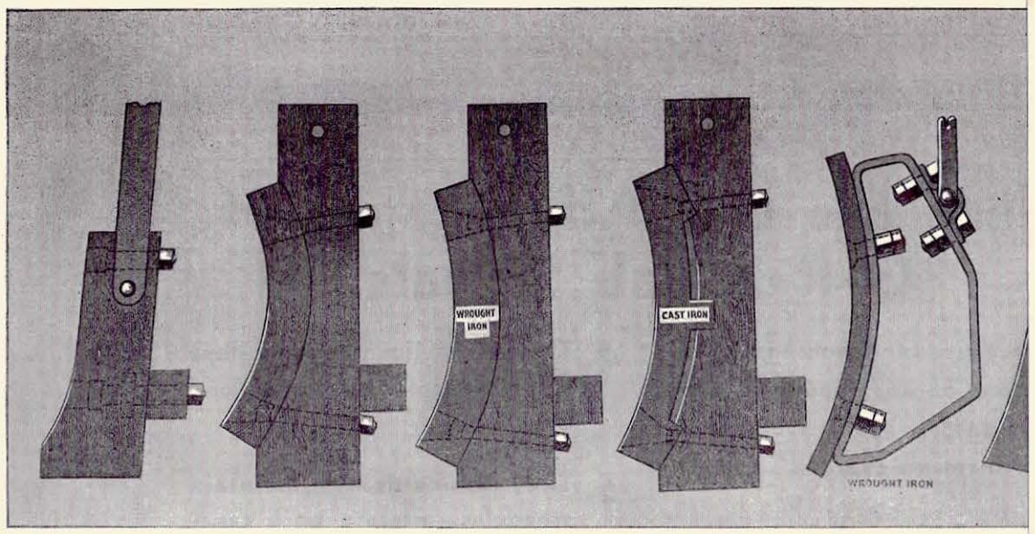

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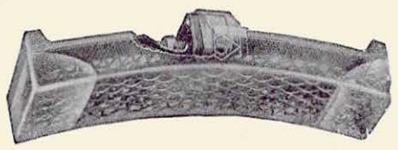

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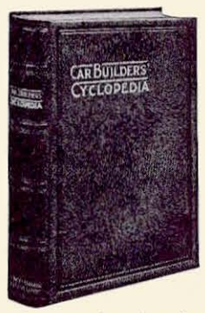

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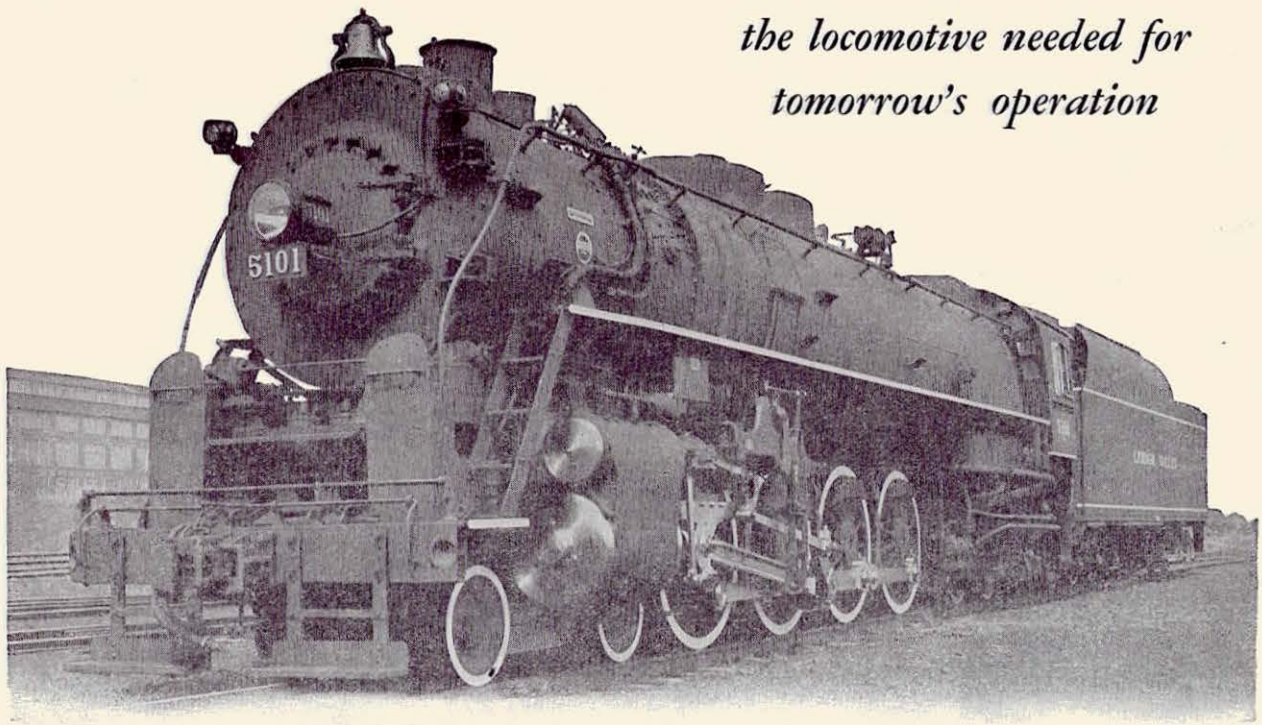

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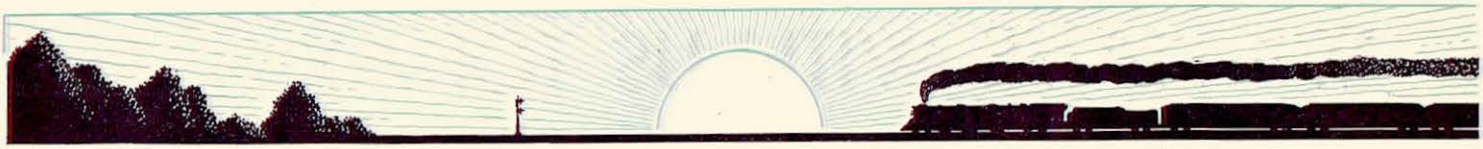

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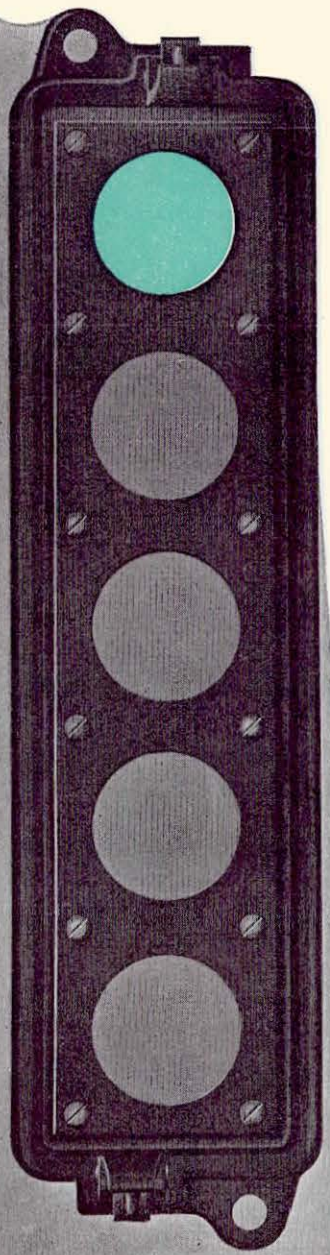

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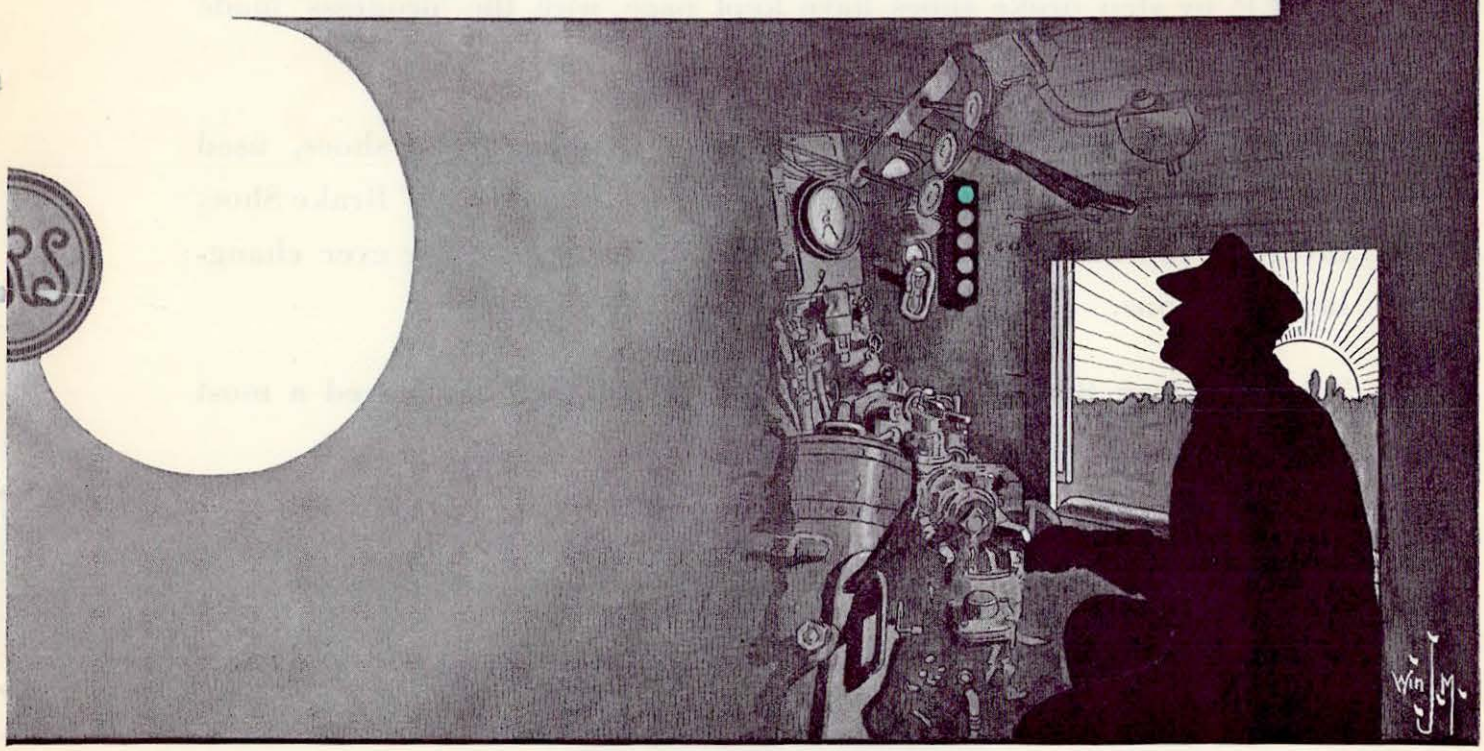

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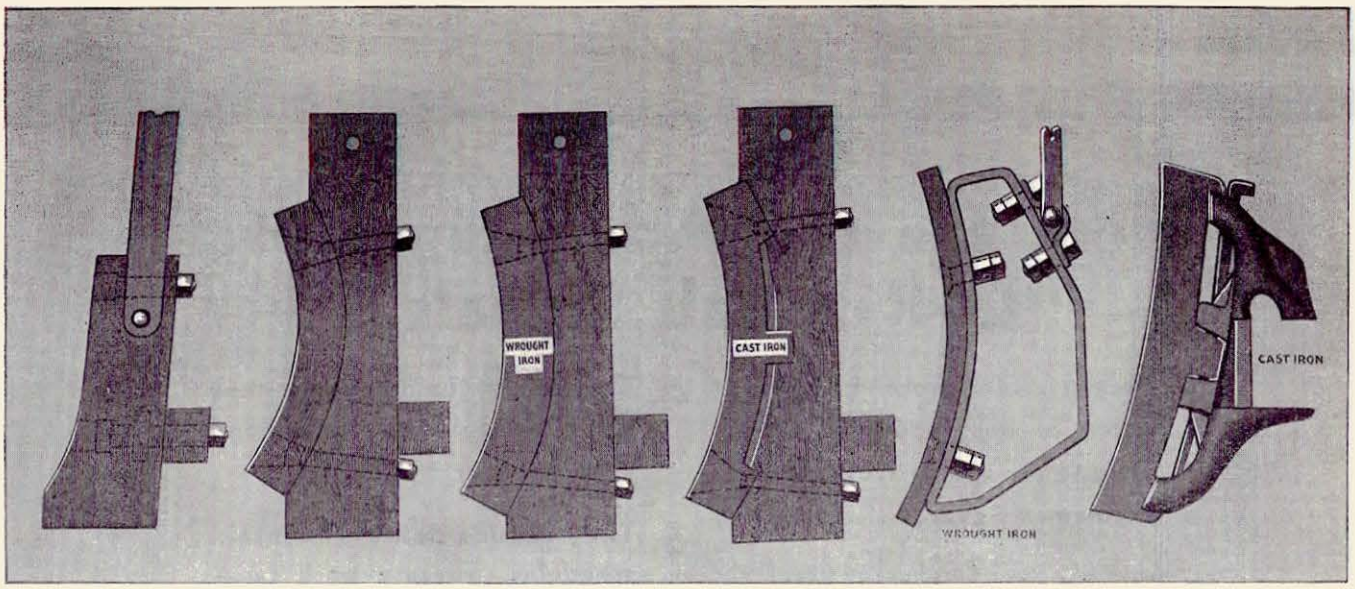

Reprinted from the "Railway Gazette" May 5, 1905

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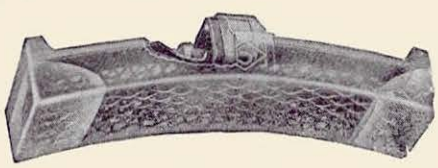

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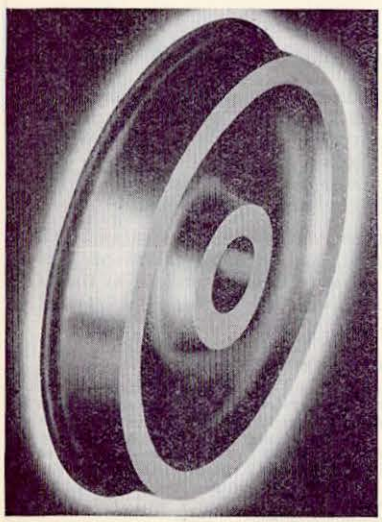

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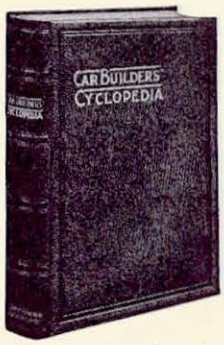

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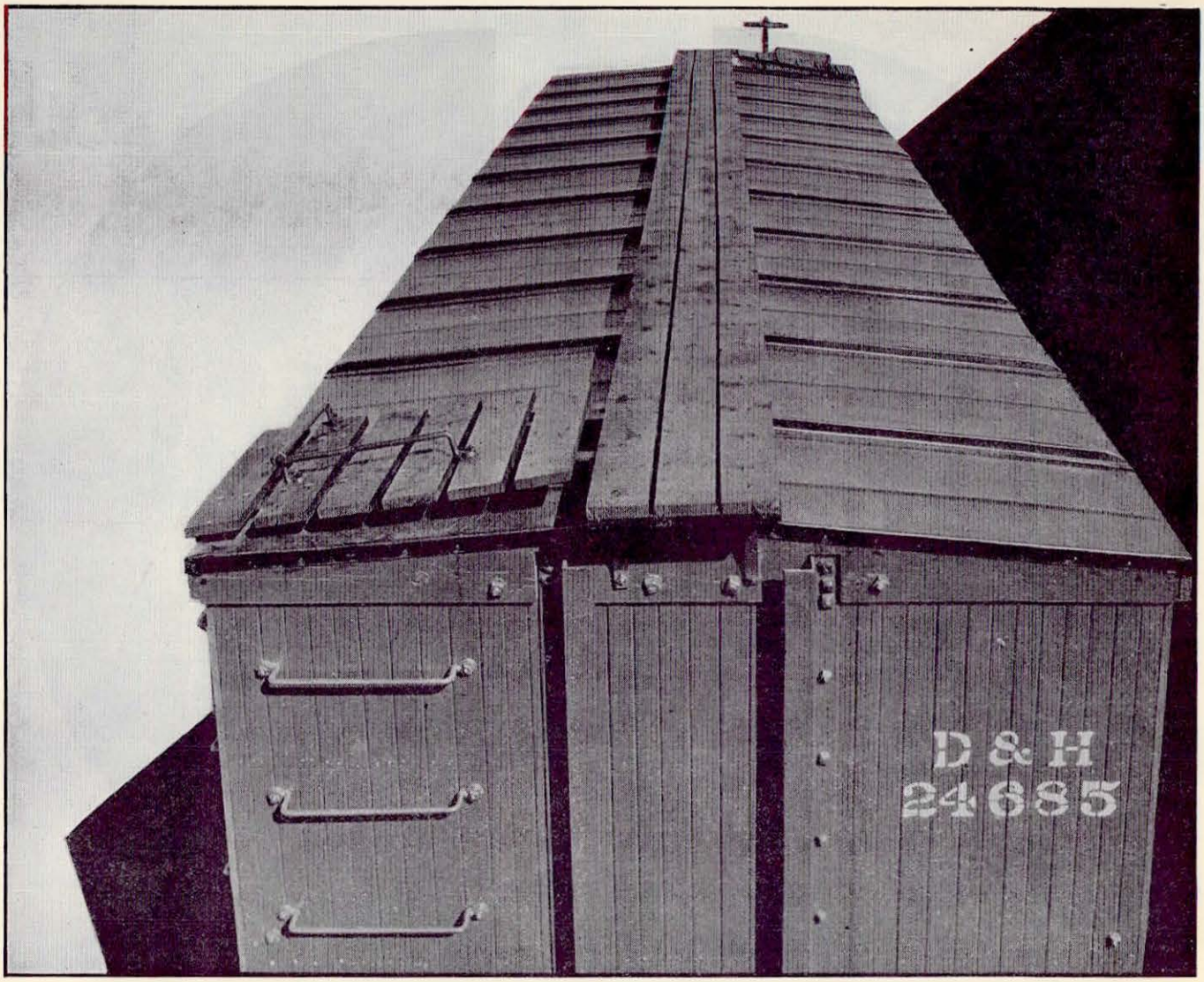

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RAILWAY AGE

Reviving The "Capital Goods" Industries

Reports from Washington are unanimous that the administrators of the government's recovery policies have begun to realize that one of the most serious weaknesses in their program has been that it has not tended sufficiently to stimulate the recovery of the "capital goods" industries. A "consumers' goods" industry is one which makes goods for immediate consumption, such as the shoe manufacturing industry, which makes shoes for people to wear out. A "capital goods" industry is one which makes machinery with which to make consumable goods, such as the industry which makes machinery with which to manufacture shoes.

More than a year ago it was pointed out that between 1929 and 1932 the decline of employment in industries producing consumer's goods and services had been only 24½ per cent while the decline of employment in the capital goods industries had been 60 per cent, and more recently it has been estimated as high as 80 per cent. The employees of capital goods industries buy consumer's goods and services, and it seemed obvious, and repeatedly was pointed out, that the nation's power to buy even consumer's goods and services could not be restored until the millions formerly employed in the capital goods industries had been re-employed; but only recently, apparently, have the administrators of government's recovery policies awakened to a realization that the most important problem of recovery is to revive the effective demand for capital goods.

Why Buy "Capital Goods?"

Consideration of the means by which employment in the capital goods industries can be revived immediately raises questions of great importance regarding the administration's recovery program. Why does any company buy anything from a company producing capital goods? Why does a shoe manufacturer buy new machinery with which to make shoes? Why does a railroad buy new equipment or tools? Sometimes new machinery is bought to replace machinery of the same kind that is worn out. Usually, however, the new machinery bought is improved over that which it replaces, and is acquired largely or wholly either to increase production, or to reduce the cost of production by reducing the amount of labor required to secure a given output; and the purpose of increasing production or reducing labor costs of production is to reduce the losses or increase the profits of the company buying the machinery. Now, all experience, including experience within recent months, indicates that sales arguments or propaganda to get business men, or any other class of people, to "buy now" is ineffective unless it convinces them that it is to their selfish interest to "buy now." Very few are influenced to increase their buying by the argument that it will help to improve general business or by appeals to their patriotism.

Only the "Profit Motive" Is Effective

The answer, then, to the question as to how employment can be revived in the "capital goods" industries is, that it can be revived only by increasing the purchases made from them, and that buying from them can be increased only by convincing those who might do the buying that they will thereby reduce their losses or increase their profits. Take the railroads, for example. The government is offering to loan them money with which to buy equipment and rail and increase their maintenance work; and this illustrates an increasing realization by the administration of the necessity of stimulating the capital goods industries. But government loans to private industries to enable them to increase their buying, however desirable at the present juncture, will only partially solve the problem of reviving the capital goods industries. That problem can be solved only by facing the facts regarding the motives that really influence business men in general and adopting policies based upon them. The extent to which the railways will increase their employment and buying will be determined by the extent to which the management of each railway believes that it will benefit by increasing its employment and purchases. No amount of propaganda or threats of coercion from Washington will, in the long run, cause any substantial revival of the capital goods industries; but convincing evidence that those who increase their purchases of capital goods will thereby reduce their

losses or increase their profits will speedily increase their purchases from the capital goods industries.

What has this to do with the recovery policies of the administration? First, much propaganda which has been disseminated from Washington has indicated that the general policy of the administration is adverse to improvements in machinery or plants that will increase production or save labor. As the capital goods industries are devoted mainly to the production of equipment and machinery for the express purposes of increasing production and saving labor, production and employment in them cannot be increased without an increase in the effective demand for equipment and machinery to increase production or save labor. Fortunately, word is now going out from Washington that, while the administrators of the recovery program are still opposed to increases in plant capacity, they are not opposed to the installation and increased use of labor saving machinery.

Second, it has been an announced part of the administration's policy for business to forego immediate reductions in its losses or increases of its profits in order to make larger increases in employment and wages than it is assumed would be practicable if the usual efforts were made to reduce losses or increase profits. Obviously, however, increases in losses or reductions of profits in the consumers' goods industries reduce their ability to make purchases from the capital goods industries, while the only way in which buisness and employment can be increased in the capital goods industries is for other industries to increase their purchases from the capital goods industries for the purpose of reducing their losses or increasing their profits. How is employment to be increased in the railway equipment and supply manufacturing industry, for example, unless the railways make larger purchases from it, and how are the railways to be influenced to make larger purchases from it unless by convincing them that in future—and not in the remote, but in the near, future—the railways will reduce their losses or increase their profits by increasing their purchases?

Facts versus Economic Theories

The trouble with certain half-baked economic theories that recently have been widely disseminated and accepted is, that they disregard facts of the most vital importance; that among these facts are, that that large part of the important industries of this country which is devoted to the production of capital goods has been developed to provide means of increasing production and reducing the labor cost of production; that the sole motive of business men in trying to increase production and reduce its cost is to reduce losses or increase profits; and that therefore any government policy which even temporarily discourages efforts to reduce losses or increase profits tends directly to prevent revival of the capital goods industries and of employment by them.

The consumers' goods industries cannot be fully revived until the capital goods industries are revived, because the employees, or former employees, of the capital goods industries are a very large part of the total market for consumers' goods. The capital goods industries cannot be revived unless and until it is made profitable for the consumers' goods industries to make larger purchases from the capital goods industries; and the consumers' goods industries will not increase their purchases from the capital goods industries until their managements are confident that they will reduce their losses or increase their profits by doing so. In the last analysis, therefore, the complete revival of business and restoration of employment can be accomplished only by convincing business men that conditions have become, or are becoming, such that they can reduce their losses or increase their profits by increasing the investment in their businesses, and they will not become convinced of this as long as they are told, or government policies are followed which they believe tell them, that the administration is averse to the making of investments and the following of other policies in business the purpose of which is to reduce losses or increase profits by increasing production or reducing the cost of production.

It is argued that further increase in the installation of machinery to increase production or save labor will further increase so-called "over-production" and technological unemployment. The answers to this argument are two-fold. First, the existing unemployment in the capital goods industries cannot be reduced, and therefore the depression cannot be ended, without an increase in the production of the equipment and machinery which the capital goods industries exist to produce. Second, all the past progress in industry, resulting in increases in the production of consumable goods per capita, and in the possibility of increased consumption per capita, has been due to the development of the capital goods industries, stimulated by purchases made from them by business men motivated by the desire to increase their profits. Therefore, any government economic policy that tends to retard purchases from and revival of the capital goods industries tends not only to prolong or perpetuate unemployment in them, but to delay or arrest all economic progress.

Do Railroads Need to Buy Anything?

There seems to be some misunderstanding as to the necessity or desirability of large purchases of railway equipment and materials at the present time. Some railroad men have been quoted as of the opinion that any considerable expenditures would be unwise and that those who are proposing them are interested primarily in some goal other than the welfare of the railway industry.

The *Railway Age* counts itself among those who believe that the railways could profitably spend considerable sums of money, if they could get it, for both maintenance and capital account. We do not, however, believe that a single nickel should be expended for any-

thing not needed. In other words, the railways should do their part to help the capital goods industries where they can, but only to the extent and insofar as such action will also benefit the railways. They are in no position to play the role of Santa Claus to any greater degree than they now do.

The railways have a large surplus of cars and locomotives. Therefore, to handle even a large increase in traffic, they do not need new equipment if capacity is the sole consideration. But what does the surplus consist of? Do the surplus locomotives, for instance, and perhaps even many of the engines now in service, compare sufficiently well with new types of motive power so that they cannot with profit be discarded and replaced with modern power? We merely ask the question. It can be answered only in the light of the motive power situation on each individual road, but it must be so answered before it would be safe to conclude, from the large surplus totals, that the railroads do not need to buy any new motive power.

"Patching an Old Rope with New Chain"

In the matter of car equipment, perhaps, the finding would vary somewhat. Cars are in a state of rapid evolution, but the developmental stage has not proceeded far enough so that there is yet a large selection of tried and tested designs which definitely make obsolete any considerable number of cars now in service. Shortages will occur in special types of equipment and new methods of freight handling will call for an increasing number of cars built to meet such requirements, and this should bring some much needed business to the car builders. The main hope for future heavy expenditures for cars, however, would appear to lie in the perfection of designs which will be so much superior to existing equipment that the railroads can afford to replace rolling stock even though it is not worn out.

One danger that should be scrupulously avoided, to use the language of a high government officer who is interested in the railways, is "patching up old rope with new chain." In other words, great care should be exercised in any repair program to avoid spending money on either cars or locomotives which are too old or obsolete to justify continued service. There is a natural and praiseworthy impulse to repair old equipment rather than purchase new, because repairs give work to railway employees. It should be remembered, however, that these same employees might be given work equally as well if they were put to dismantling old equipment which, while it may appear on the asset side of the balance sheet, may at the same time actually be a liability to the earning capacity of the railroad.

Reviving Employment by Reviving Business

The railroads cannot afford to buy things they do not need simply in order to make business better for other people. On the other hand the opportunities for wise investment in their own selfish interest may be much larger than is generally suspected. With the definite possibility that funds may soon be made available in considerable quantity for such expenditures, should not each railway searchingly explore the possibilities of every device and every form of modern equipment offered to improve the economy of operation—comparing the costs of such equipment with the operating and maintenance costs of present plant?

The *Railway Age* is still old-fashioned enough to believe that the revival of employment depends upon the revival of business; that the revival of business depends upon giving business men full opportunity and incentive to reduce their losses or increase their profits by much the same means that they have used to reduce or increase them in the past; and that the sooner business men are given every reasonable incentive and opportunity to use these means the sooner there will be a general and lasting revival and increase of production, commerce and employment.

A Joker in the C. of C. Questionnaire

The efforts the manufacturers and operators of trucks are making to secure uniform adoption in all the states of the code of weight and size limitations on motor vehicles developed by T. H. MacDonald, chief of the Bureau of Public Roads, and promulgated under the aegis of the American Association of State Highway officials, has developed into a barrage. From every side and at intervals of increasing frequency attempts are being made to liberalize the restrictions in all states where sizes and weights prescribed by this code are not permitted. In the *Railway Age* of September 16 we drew attention to the appeal of the Federated Motor Truck Associations to the Secretary of Agriculture asking him to urge the President to espouse the cause of the operators of giant motor vehicles. The latest evidence of unrelenting effort in this direction appears in a questionnaire sent out to member associations by the Chamber of Commerce of the United States.

This questionnaire, details of which were published in the news columns of our September 23 issue, is, in the main, quite fairly worded and seeks to discover the views of the membership on questions of regulation and taxation of highway transportation. This is a matter which has been discussed pro and con in the press and elsewhere in the greatest detail for several years, so that business men are fully informed of the issues involved and, we believe, may be expected to vote with a full knowledge of what they are favoring and why. But, in addition, the truck interests have succeeded in persuading the officials of the Chamber to ask the member associations to vote upon the adoption in all states of the MacDonald code of weight and size limitations. This is asking them to accept a pig in a poke, because the data upon which this code is based have

not been exposed for critical analysis and discussion to anyone except those responsible for its promulgation. The following tabulation compares the MacDonald formula with the commercial motor vehicle limitations of the state of Kentucky:

	MacDonald Formula	Kentucky Limitations
Max. Wheel Load, High-Pressure Tires	8,000 lb.[1]	Gross Weight on All Wheels Not to Exceed 18,000 lb.
Max. Wheel Load, Balloon Tires	9,000 lb.[2]	
Max. Axle Load, High-Pressure Tires	16,000 lb.[3]	
Max. Axle Load, Balloon Tires	.....	
Max. Width	96 in.	96 in.
Max. Height	12½ ft.	11½ ft.
Max. Length (single vehicle)	35 ft.	26½ ft.
Max. Length (comb. of vehicles)	45 ft.	30 ft.[4]
Full Trailers Allowed	One	None
Max. Speed	45 m.p.h.	30 m.p.h.[5]
Max. Gross Weight (vehicle or comb.)	At least 28 tons[3]	9 tons

[1]This loading is permitted for solid tires also, but in such cases speed is restricted to 10 m.p.h.
[2]Says such weight will not increase slab stress.
[3]Calculated by the formula; Not less than 700 × (distance, in feet, between first and last axles of combination plus 40). A combination with axles 40 ft. apart, therefore, could weigh 56,000 lb. or 28 tons gross. The factor of 700 is proposed as a minimum and not as a maximum. If the axle load limits alone were permitted to control gross weight, a six-wheel truck and trailer combination might weigh 50 tons or more.
[4]Tractor and semi-trailer.
[5]Vehicles over 2½ tons gross weight.

Our motor transport friends vehemently urge that these Kentucky restrictions and similar ones in other states are unreasonable, but there is no more proof that they are unreasonable than there is any convincing testimony available in behalf of the MacDonald formula. Mr. MacDonald is prejudiced in favor of truck transportation, as we have pointed out and substantiated many times in these columns; and as for the approval given this code by the American Association of State Highway Officials, it would appear that their function in this connection has been little more than that of a rubber stamp for Mr. MacDonald. Quite aside from that, and even if state highway officials have had a larger share in preparing this code than appears on the surface, we question the competence of one section alone of public servants to given a final answer on a matter of such importance. The highway officials have a right to be heard on this question, but after all they are spenders of public money. The responsibility of providing it falls upon the taxing authorities and, finally, upon the taxpayers. We submit that no code of permissible vehicle weights, having as it does such an important bearing on highway costs, can safely be accepted until it has been critically examined not alone by the spenders of public funds, but also by those who have to provide them.

The truth is that there has been insufficient investigation of the important question of the share of road costs properly assignable to vehicles of different weights. Mr. MacDonald's opinions on this subject differ widely from those set forth by Charles F. Marvin, engineer for the Bureau of Standards, as they do from those of other competent engineers who have studied this subject. An application of the conclusions reached by Mr. Marvin to the situation in some of the states indicates that the restrictions on the size and weights of vehicles would have to be much more rigid even than they are in Kentucky, if commercial highway transportation is to be made self-supporting.

If protagonists of the MacDonald formula believe it can be justified in the light of impartial and able scrutiny, we would suggest that complete data upon which it is based be made available and that representative public bodies in no way connected with transportation or highway construction be invited to examine this code and its implications. In particular, it would seem fitting that the National Tax Association be asked for an opinion, since if we are going to build roads of much heavier construction than the operators who require such construction can pay for, then there will arise important questions of public finance. Moreover, it would seem proper also that real estate boards and other representatives of the owners of real estate might properly be invited to examine the facts since, if a mistake is made and a formula is adopted which will involve heavier road costs than the users can afford to pay, then it will be real estate taxpayers who will have to make up most of the difference.

Consolidation of Interlockings

THE increased facility secured in the operation of trains and the economy effected in operating expenses make it worth while to consolidate the control of two or more interlockings wherever it is practicable to do so. For example, on the Eastern region of the Pennsylvania, where 34 such consolidations have been completed during the last few years, an average saving in operating expenses of about $5,000 is being effected annually for each tower abandoned. The expenditure involved in making the consolidation varies so that the return on the investment ranges from 12 to 60 per cent.

Such consolidations can be made in various ways, depending on the equipment in service. An outlying mechanical plant is ordinarily replaced by power switch machines and signals, controlled remotely from a new machine in the tower of another plant. Where several plants are involved, an entire new installation is often justified, as, for example, on the Dayton Union Railway at Dayton, Ohio, where a new centralized control type of interlocking includes five layouts, at which there were formerly mechanical interlockings, and four other switch layouts at which switch tenders were on duty. In cases where two existing plants are both power-operated, the consolidation can, in many cases, be effected by moving one control machine into the other tower and extending the control circuits by installing cables. Such a consolidation was effected at Thorndale, Pa., on the Pennsylvania where two electro-pneumatic plants, 1.8 miles apart, were combined. One advantage brought about by almost all of these consolidations is that train movements are facilitated because they can be directed by signal indications throughout the entire area, thus eliminating delays occasioned by handling train orders or by communication between operators in the various towers.

Something More Than Elaborate Ticket Offices Is Needed to Sell Railroad Transportation

Is Railway Passenger Service Properly Sold?

Does salesmanship at ticket offices measure up to that of competing agencies?—Does public know what the railroads have to sell?

HAVE railway merchandising methods kept pace with those of their competitors? Are the railways selling passenger service as efficiently as they should be? In brief, are they doing a good job of selling? These questions are of vital importance to the railways today because of the keen competition that other types of transportation are providing and because of a changing attitude on the part of the public towards the use of railroad service.

As with any product, the sale of railway service resolves itself into two questions: (1) Is the product salable? and (2) Is the sales organization properly equipped and instructed to perform its work? In general, a product is salable when it is adapted to the needs of the buyer. However, it is commonly necessary to educate the buyer to the fact that he needs the product. In the case of the railways, the high degree to which they have been or now are perfecting, improving and developing their product—passenger transportation—has been set forth in preceding articles in this series. In this article, the degree to which this service is being sold will be discussed.

This involves a consideration of many phases of passenger salesmanship. Are railroad salesmen, ticket agents, etc., supplied with the needed data and given the necessary instruction in dealing with and selling to patrons? Have the sales methods of the railways kept pace with those of their competitors? Does the public know what the railways are selling?

To determine the answers to these questions, it is necessary to secure a true picture of the conditions that actually prevail. This, members of the staff of the *Railway Age* endeavored to secure through calls on sales representatives of various railways. A survey of the selling methods of the railroads leads first to the ticket agent, the individual who is the "railroad" to the public and who is in a position to create good or ill will. Calls were made, therefore, at some of the 4,000 railway ticket offices in cities in the United States. In all cases, attempt was made to encourage the ticket agent to plan and sell a trip, no limitations being made that would interfere with this ingenuity.

Confusing the Inquirer

At office A in Chicago, the following conversation took place:

"I'd like to get some information on a trip to Seattle." (The answer to this question was recited so rapidly that the prospect had to ask the agent to repeat the figures in order that he might understand them).

"We have a rate of $80.50 by way of California and a rate of $77.76 through Canada. The sleeping car rate is $35.63 for a lower, that is on the $77.76 rate, and $35.63 plus the local from Seattle to San Francisco or Los Angeles. The local to San Francisco is $10.13 and to Los Angeles $14.25."

"Since there will be two of us, we are anxious to hold

down expenses. Do you have any less expensive coach service?"

"Yes. The coach rate is $60.50. The $35.63 sleeping car rate is a reduced rate. It's 1½ times the one-way rate."

"Can one stop off any place and sleep?"

"Oh, yes. The ticket has a 21-day limit with stopovers. We also have a rate of $70.50 in tourist cars to Seattle and return. The sleeping car rate is $24.76."

This agent was not patronizing and did not quote the figures to belittle the prospect. Yet he befuddled the prospect by presenting a confusion of figures that the prospect did not understand and left him with the impression that traveling by train is complicated. Not infrequently, it was observed that agents use so many technical or uncommon terms that the prospect, in order not to appear stupid, refrains from asking all the questions that he desires information on. This salesman failed to realize that the majority of persons know little about passenger rates and service and that there is a necessity for simplifying a discussion of these subjects so that the prospect can understand and feel at ease.

Meeting the Low Cost Patron

At office B in Chicago:

"I'd like to get some information on a trip to Los Angeles."

"We have a round trip rate of $80.50 for 21 days and $90.30 for the season. When do you want to leave?"

"Within two weeks."

"That's too bad. If you had left last week, we could have fixed you up. We have an all-expense tour that we were able to operate at a low figure because we got some low rates from the hotels." (Then a lengthy description of the trip, consisting mostly of names of hotels and detours).

"Well, that's past. You're not selling that now, are you?"

"No. What sleeping car accommodations do you expect to use?"

"I don't know. There are two of us."

"You can use a lower then. That's $28.13."

"Is your coach service to Los Angeles worth riding in "

"Oh, yes. The coach rate is $60.50 for the round trip and the seats are very comfortable. Here's a picture. You see they recline as much as 45 deg. Why don't you buy your sleeping car accommodations each night and ride in the chair car during the day? This won't cost you more than $15 to $18."

"I saw a price of $23 on one of the bus offices."

"Well, that's $46 for the round trip. The cost by rail is much cheaper if you include side trips. If you can leave on September 1, we can fix you up on a tour that really is worth while. Fifteen days with 4 days at sea, taking in California, the Canadian Rockies, Banff Springs hotel and other places."

This agent first disappointed and discouraged the prospect by telling him what he missed last week. In addition, his enumeration of prominent hotels, etc., was too complicated for the average person to digest. Later, when he saw that his prospect was concerned with low cost, his suggestion that the prospect buy a berth each night and ride in a chair car during the day while leading to a loss of revenue for the railroad, went far to hold a patron whom he was about to lose because of the cost.

Answers Questions Only

At office C in Chicago:

"I have to be in New York on September 12. I may be able to leave several days before. What's the best way to get there?"

"Here's a train that leaves at 10:30 and gets there at 8:10. Here's one that leaves at 2 and gets there at 8:45. It's an extra fare train. Here's one that leaves at 2:05 and gets there at 11:15. Here's one that leaves at 4 and gets there at 2:55. Here's one that leaves at 6 and gets there at 4:55. Here's one that leaves at 9 and gets there at 6:30. That ought to be enough to select from."

"If I am able to leave a few days earlier, can I go by way of Washington?"

"Yes."

"Can I stop off at Philadelphia?"

"Yes. You can also take a side trip to Atlantic City."

This agent evidently felt that all the prospect should know was the departure time of trains. He failed to volunteer any information or advance any selling arguments and waited impatiently for the prospect to make the next move.

Meeting Competition

At office D:

"What is the fare to New York?"

"$32.70."

"Do the buses get any business?"

"Oh, yes. They carry lots of people. They're all right if you have to get there and haven't much money. You don't want to take a bus."

"Is it such a bad trip? The buses look comfortable."

"Yes, but after you sit 28 hr. they become very uncomfortable. It doesn't make any difference to us how people go; we own the ..... lines, so we get them coming and going."

Here the salesman showed an indifference to competition that is all too common. He made little effort to point out to the patron the advantages of rail travel, although it was evident from the beginning of the conversation that the patron was bus-minded.

Agents Uninformed

At office E in New York:

(Over the telephone). "I want to go to ..... (a resort); up and back on Saturday. Are your week-end tickets good going and coming on Saturday."

"No. Not on this road. You can't return on a week-end ticket until Sunday. The best we can do for you is our 30-day round trip" (which is considerably higher).

(At the ticket window—later on the same day). "I wish to go to ..... I understand the week-end ticket is not good and I'll have to take the 30-day ticket. What's the best you can do?"

"The 30-day ticket is $4.95. Just a minute, I think I can do better than that. Here, I have a 21-day ticket for $3.95."

One agent either did not have the information or was not instructed to sell the reduced rate. The second agent realized that the sale of railroad transportation possibly depended upon whether it was cheaper to go by train than by private automobile. The information given by the latter agent has since caused several people who have learned of it through this prospect to use the train instead of their automobiles.

At office F (an off-line agency in Chicago):

(Over the telephone). "What is the rate from Chicago to .....?"

"$17.19."

"Any special rates?"

"No."

At office G (an off-line agency of a competing railway in Chicago—a few minutes later):

(Over the telephone). "What is the rate from Chicago to .....?"

"$17.19."

"Any special rates?"

"Sure, the ..... fair is on and we have a round-trip rate from St. Louis of $7.05. Why not use the $12 round-trip rate to St. Louis also? That makes the round trip to ..... $19.05. Shall I send a ticket to you?"

"Yes."

At office H in H..... P...., a suburb of Chicago:

A patron asked the agent for a $2.60 advertised round-trip week-end ticket to Madison, Wis., only to be told that the only week-end rate was $3.95. The patron then went to E....., a neighboring suburb, and purchased the $2.60 ticket.

The agents at offices F and H either had not been supplied with proper information or did not take the time to give the prospect the information he needed. The agent at office G, however, gave the prospect what he wanted, sold a railroad ticket and kept a passenger on the rails.

Little Salesmanship Displayed

The calls abstracted above, which are typical of many others that were made, reflect the type of salesmanship displayed at the better manned offices in the larger cities.

They can fairly be considered, it is believed, as above the average to be found in the smaller stations where it is to be expected that less attention might be given to training. It is to be noted that while the agents gave the information in every instance, they volunteered little more, and the prospect, in most cases, had to ask one question after another in order to draw the information out of the agent. There was an almost complete absence of interest in making a sale.

Only one ticket agent approached the inquirer with a smile and a "good morning" greeting. Only one agent displayed more than a passing interest in the prospect's trip. None made the prospect feel that the trip was as important to the agent and the railroad as to the prospect. When airplane or bus service was mentioned, a few of the agents took a defensive attitude rather than accepting the question as an opportunity to show the patron how much he was getting for his "railroad dollar" and none called attention to the safety, reliability, convenience and regularity of railroad transportation. No agent endeavored tactfully to ascertain the financial status of the prospect with a view to selling him accommodations in keeping with the prospect's means; neither did he attempt to sell the advantages of better accommodations where the prospect offered the opportunity.

Competing Agencies Present Better Salesmanship

The instances reported above occurred in large cities where railroad ticket offices face the high-powered solicitation of air lines, bus companies and travel bureaus. Similar calls at the latter agencies present a decided contrast with the salesmanship displayed at the railway ticket offices in the same cities and indicate one reason why these agencies are taking so much business from the railways.

At a consolidated bus office in Chicago:

"Good morning."

"Your window sign, $21.50 to Los Angeles, attracted my attention."

"Let me explain that to you. We represent all bus lines and I have a specially prepared map which I like to use because it makes the picture much clearer. There are several bus routes to Los Angeles as you see them marked on the map, and the rates vary from $21.50 to $46.50. The latter rate includes sleeping accommodations and one meal a day. The $21.50 rate is by way of Omaha and Denver. Another rate is $34.50 over the ..... Lines by way of Denver and Salt Lake or by way of St. Louis and Kansas City. All of these buses operate on a schedule of 80 hr. The fastest schedule is over the Santa Fe trail. This schedule is 63 hr., the same as the train schedule, and the fare is $23.50. There are three buses a day by this route which carry you through, with changes at Kansas City and at Trinidad. This route gives you an opportunity to stop at Pikes Peak, the Painted Desert and the Grand Canyon.

"In addition to these northern routes, we have southern routes, by way of Tulsa and El Paso with rates of $25 and $27.50, the latter including three meals a day. The time is 80 hr. and the unused meal coupons are redeemable. On all these lines, except the ..... and the ....., seats are reserved and the seat you reserve is yours for the entire trip without any argument. The seats in the buses are comfortable reclining chairs. Free pillows are provided and the bus is accompanied by a porter. The trip is pleasant and the scenery is enjoyable."

"Sixty-three hours is a long time to sit still. Are stopovers provided "

"Yes. You can stop off at any place as long as you like and when you please."

"Then there is no limit on the ticket?"

"No. The ticket is good until you use it."

"Do you have round-trip rates?"

"Yes, we do. In that case I suggest that you make a tour using a southern route outbound—Kansas City, Wichita, Trinidad, Albuquerque—to Los Angeles, and a northern route returning, via Cheyenne, Denver, and Omaha. In this way, you can stop off any place and see a large portion of the country. We can route you over any lines you choose. The round-trip rate by way of the ..... is $51.75; and by way of the ..... Stages $56.25; if you wish to return by way of Portland it is $60.70."

A Selling Talk

At an air line office in Chicago:

"Good afternoon. May I serve you?"

"I'd like some information relative to your service to New York. I've never used air service before."

"We have 11 planes daily from Chicago to New York and I am sure you will find the service most enjoyable. The fare, as shown in this folder which you may have, is $47.95 for one way and $86.31 for the round trip, a saving of $9.59. Stopovers are permitted on both one-way and round-trip tickets. Cab service is available from the business district to the airport, special low fares applying. This booklet describes our service. You will note that our planes have flown 55,000,000 miles successfully and that the passenger's safety and comfort are guarded in the sturdy planes by two pilots and a stewardess. Our pilots are experienced and their work is facilitated by proven aids to aerial navigation. When do you expect to leave?"

Stimulating Interest

At a travel agency in Chicago:

"Good morning."

"Your window display is made up of foreign tours. Do you handle other tours?"

"Yes, we handle everything. Is there some particular trip in which you are interested?"

"Well, we haven't taken a vacation for two years and when I saw your display, it gave me the idea of taking a four weeks' vacation in Los Angeles and on the coast."

"We can offer you a round-trip rate of $90.30 and Pullman accommodations at $23.63 each way. No doubt you will wish to stop off at the Grand Canyon, Los Angeles and Yosemite National Park. It will also be possible for you to stop at Colorado Springs or the Canadian Rockies.

"If you are able to spend more time enroute, it is possible to travel by train to New York, thence by steamship through the Panama canal to California and return by steamship or train. Three steamship lines are available and each operates these combination tours. On the Grace Line, the rate is $340, which includes the steamer fare, the rail fare, meals and first-class accommodations. I don't know if you are interested in the tourist rate but that is $220. The steamship trips afford relaxation and pleasure. The ships make calls at various ports and from these ports one can make side trips at moderate prices. It is like carrying your hotel accommodations with you while you travel. These circulars which I am about to give you explain the routes, points of interest and service in detail, so that you can plan a worth while vacation. We will be pleased to make arrangements for you."

Satisfy the Customer

The selling of railroad transportation involves not only the sale of the ticket asked for, but the fulfillment of the expressed or unexpressed desires of the customer, the furnishing of all information pertaining to a particular trip and frequently the encouragement of the patron to buy more transportation or better accommodations, without being offensive. When a person approaches a ticket agent, it is with the idea of purchasing a commodity, and he expects the agent to treat him as he is treated in his contacts with other businesses that depend upon his purchases. The trip he is about to take is important to him and should be important to the ticket agent. He knows little about the ramifications of rates, routings and places of interest and expects the agent to volunteer the information in an unassuming and non-patronizing manner. The primary motive should be a satisfied customer.

One of the most important factors in satisfying a customer is courtesy, for not only does the proper attitude of the ticket agent facilitate the sale of transportation, but it gives the prospect a favorable impression of the railroad and of what may be expected on a trip over that line. The discourteous agent, who is encountered all too frequently, handicaps his own work and drives patrons to other railroads or to other forms of trans-

portation. This is illustrated by the recent experience of a patron of a railroad that is conducting an active campaign to secure a large amount of short-haul traffic, in competition with private automobiles, street cars and other transportation agencies, who reports as follows:

"When I reached the ..... station about 10 o'clock in the evening, I found a crowd of between 50 to 100 persons endeavoring to purchase tickets, and only one ticket seller on duty. When I finally reached the window, after a delay of more than 10 min. and after missing one train, I asked the ticket seller to hurry as much as she could (for I was buying 6 tickets and was about to miss another train) and her reply was, 'You don't see anybody sleeping around here, do you?' Hereafter, I will avoid that railroad when it handles large crowds."

The impression left in the mind of this patron by the discourteous representative is in striking contrast with the good feeling left by an agent of another road who went out of his way to satisfy the same customer. This patron recites the following experience:

"Going into the ticket office of the ..... line at ....., I purchased a ticket for Chicago. I then inquired regarding the next train and found that I would have to wait 25 min., having just missed one train. Being in a hurry to reach the city, I asked the agent if he knew whether the ..... line had any trains leaving more promptly. 'I don't know', he replied, 'but I'll find out for you.' When I offered to go to a public phone, he insisted that he would be glad to call the ..... line and secure the necessary information. His call developed the fact that a train was due at an adjacent station on the other road in 3 or 4 min., so he refunded the money which I had paid for the ticket. The ..... agent lost a ticket in this instance, but he created in my mind a friendliness for his road that will bring to the road many more sales, for I left his office with the feeling that, whenever other things were equal, I would give this agent and his road the break when traveling."

Should an Agent Quote a Reduced Rate?

In one of the cases cited above, the prospective patron had difficulty in securing the information relative to a commodity he wished to purchase. He was very much interested in reduced rates, and yet the agent did not mention these rates until the patron asked specifically for them. What should be the position of the agent in such an instance? If he advises the prospect regarding the various reduced rates, and plans the trip to the advantage of the prospect or suggests that the prospect postpone or advance his departure so that he can travel at a lower rate, the agent, in many instances, is depriving the railroad of some revenue. On the other hand, if the customer is not apprised of the low rates and learns of them later, he feels very naturally that he has not been properly served. In many cases also, the prospect asks for the rate (meaning the lowest rate) for the purpose of comparing it with the bus rate or the cost of driving an automobile, and if the rate quoted is too high, the railway loses a sale.

The matter of rates has become an important factor in the sale of railroad transportation, for the greater portion of the population from which the railroads must draw their patronage has a limited income. In 1932, less than 4,000,000 persons in the United States had incomes large enough to require them to file income tax schedules. It naturally follows, therefore, that a ticket agent should be especially alert in dealing with the individual of limited means and encourage him to travel by explaining and emphasizing the low cost of rail travel.

Public Does Not Know What the Railroad Has to Sell

Another deficiency in railway salesmanship is the fact that the public does not know what the railroads have to sell. A ticket agent should avail himself of every opportunity to inform the prospect that the railroad offers more than the ride to the destination. A few cases demonstrate that when patrons become more familiar with the services rendered by the railroads, they become permanent passengers, boosters and lasting friends. A couple on their honeymoon discovered upon arriving at St. Paul, Minn., that the bride's hat which matched her traveling suit had been overlooked and was still in Chicago. An appeal to the district agent in St. Paul resulted in the district agent calling the ticket agent in Chicago, who in turn called the bride's home with the result that the next morning the hat was in the compartment of the train which the couple boarded at St. Paul to complete their trip to Seattle, Wash. This courteous service made lasting friends of this couple for the railroad.

Many ticket agents are too secretive about the many services they are prepared to offer to passengers. This is the opinion of a railroad supply company officer who relates a recent experience by way of example. Desirous of arranging for a visit by an elderly and somewhat infirm relative, he had resigned himself to the necessity of making the journey to accompany her. Mentioning the situation casually to a railroad man, he was surprised to learn that the railroad would make all arrangements necessary for the lady's journey; a porter to meet the train at an intermediate point where a change in trains was necessary to see that she was safely transferred; the necessary instructions to the train crews so that dining car and other attendants would be alert to her needs; in fact, all those services which freed the supply officer of the necessity of making the journey.

In the Issue of October 14

Advertising, over and over again, has proved its effectiveness in stimulating the sale of all kinds of products to the public. Are the railways making full use of this sales help in their efforts to get people to ride on their trains? How can railways use advertising to better advantage? How does railway passenger service advertising compare with the advertising of their competitors? These and other questions will be discussed in the next article in the Traffic Development Series. It will appear in the *Railway Age* of October 14.

More Intelligent Promotion Needed

While the ticket office is responsible for the sale of most railroad transportation, the need for improved sales methods also exists in other passenger traffic activities. The sale of railroad transportation can be greatly enhanced through more intelligent promotional efforts and more concentrated solicitation of passengers that do not come to the ticket office. Commercial passenger agents of one middle western road, for example, keep a record of persons using excursions and advise these occasional patrons of special rates and excursions. Through this means, this railroad has developed a lucrative clientele. The agents of this railroad have also systematized the solicitation of winter tourist passengers. Agents keep a record of the name of the passenger and the time he usually leaves for his winter home, and two weeks before this date call upon the passenger and offer to make arrangements for the trip. In commenting upon this arrangement, one passenger states that for 10 years he has never gone to the ticket office for his ticket

(*Continued on page 464*)

Speed and Bridge Design Feature Grade Separation Project

Lackawanna eliminates 12 street crossings in Elmira, N. Y., in 228 days—Girderless, flat-slab structures save approximately 100,000 cu. yd. of grading

ABOUT December 1 of last year the Delaware, Lackawanna & Western completed a large grade crossing elimination project through Elmira, N. Y., involving 12 crossings, which is of special interest both because of the facility and speed with which the work was carried out, it having been completed in 228 days, and because of the fact that girderless flat-slab bridge construction, with four-way reinforcing, was employed at all grade separations, with distinct advantage. In this latter regard, it is estimated that a saving in grading of approximately 100,000 cu. yd. was made through the lower and shorter fill permissable as a result of the shallower depth of bridge decks permitted by the girderless flat-slab construction.

Six Streets Closed

In passing through Elmira, the railroad cuts across the northeast section of the city in a general east and west direction, and, prior to the recent work, the two main tracks crossed all streets at grade. In order from the east, the streets involved were Water, John, East Church, Sullivan and Clinton streets; East avenue; Oak, East Fifth, Madison, Lake and Dickinson streets; and East Washington avenue, these lying within a distance of approximately two miles.

Study of the situation in connection with the separation of grades showed that six of the street crossings could be closed without inconvenience to the public; four through the construction of short marginal streets. As a result, grade separation was effected only at Water, Church, Sullivan and Lake streets, and at Madison and East Washington avenues, the other six crossings being closed.

With the single exception of Water street, separation was effected by track elevation, with only modest depression of the streets owing to existing sewers and high ground water. At Water street, because of the low-level crossing of the tracks over Newtown creek, immediately to the east, the street was carried over the railroad on a viaduct. This individual separation was carried out during 1931 in anticipation of the general track elevation project to follow. The larger project, which involved also the four-tracking of the original two-track line in order to provide inbound and outbound leads for the yard at Elmira, and the construction of new platform facilities at the Elmira passenger station, was not begun until April 11, 1932.

The Flat-Slab Bridge Over Sullivan Street Is Typical of the Design Employed

Looking West Over the Elevated Tracks from Lake Street Toward the Passenger Station

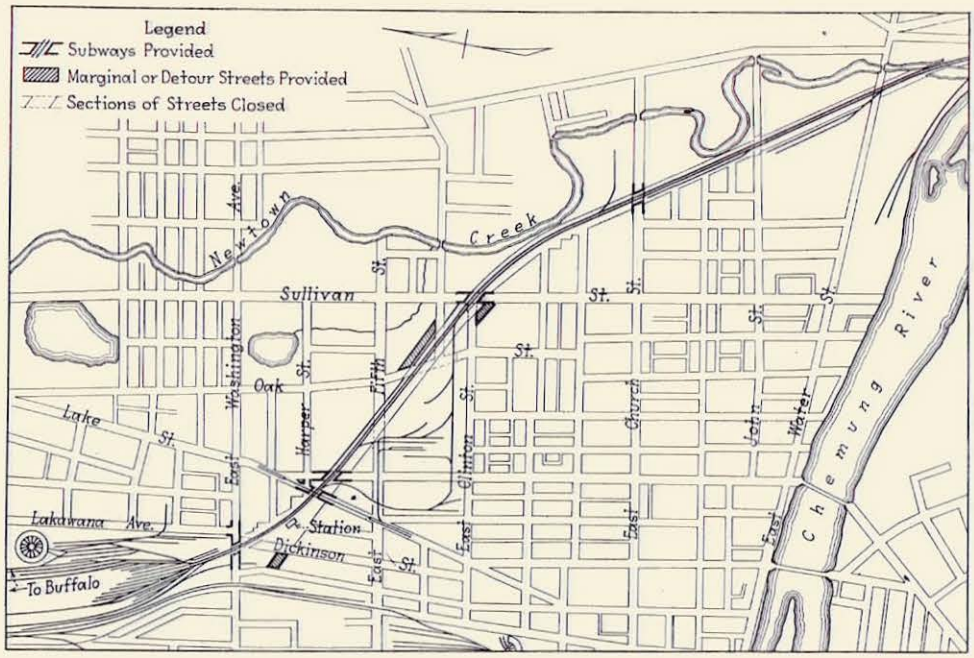
Originally, the two-track line through Elmira was practically level. As revised, beginning near Newtown creek, the four tracks rise on a 0.3-per cent grade to Church street, from which point they are level to Sullivan street, where they start an ascent of 0.13 per cent, which extends to Lake street. From this latter point, they descend on a 0.19-per cent grade to Washington street, beyond which they run off on a 0.3-per cent grade into the 40-track freight yard at the west end of the work. The maximum height of fill involved was only 12 ft., having been influenced favorably both by some depression of the streets crossed and by the shallow bridge decks employed.

The grading extended over approximately 2½ miles and continued for about one-half mile into the yard, an unavoidable feature which necessitated the raising of all of the yard tracks. The yard work alone involved approximately 160,000 cu. yd. of filling, which was approximately 40 per cent of the grading required in the entire project.

Traffic Detoured Around Work

One of the most favorable features of the work was the fact that sufficient space could be made available along the south side of the 99-ft. right-of-way to permit the construction of a two-track detour entirely beyond the filling operations, except within the yard area. This permitted unobstructed train operation and materially facilitated and speeded up all phases of the elevation work.

The detour tracks, which were ballasted throughout



General Track Plan at Elmira Just Prior to Track Elevation, Showing How Crossings Were Affected

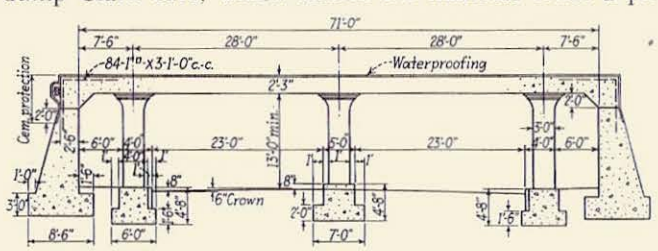
on cinders, paralleled the south right-of-way line closely, and for several hundred feet were laid in a brick paved street, which was closed temporarily. Continuing in the street, the tracks were swung around the main entrance side of the passenger station, in the station plaza area, and were then brought back into the original alinement at the throat of the yard.

Since the detour tracks cut across the main public approach to the station, which was undesirable, especially since it made the station inaccessible while trains were making the station stop, the main station was closed and a temporary one-story frame station, 95 ft. long by 35 ft. wide, was constructed immediately south of the detour tracks. This served patrons and provided for the handling of all mail, baggage and express until high-level operation was inaugurated.

Detour operation was started on May 13, leaving the right-of-way entirely clear for construction operations. Grading was started immediately, and the first bridge concrete was placed three days later. On August 29, just 105 days later, two tracks were put in service on the high level.

Practically all of the main-line grading was done with motor trucks, which hauled coarse gravel and shale from a pit about one-quarter mile north of the center of the work. Since a four-track fill would have encroached on the detour tracks at several points, a fill for only the three more northerly tracks was put up first, and it was widened out later for the fourth track. Furthermore, since the construction of the street bridges required the complete blocking of the streets, gaps were left in the grading at a number of points and street traffic was routed through them until the bridge deck forms and staging could be cleared away.

Filling within the yard was done with 30-yd. side-dump Clark cars, which hauled the material from a pit



Cross-section of the Bridge at Washington Avenue

about 10 miles to the east. Three or four adjacent tracks were taken out of service and raised at a time, using power jacks and working progressively across the yard. The ladder tracks and main switching leads, however, which could not be taken out of service, were raised under traffic in a succession of relatively light lifts. The average raise within the yard was about four feet.

Because of the relatively low fill and readily available ground around the work, the only retaining walls required were in the vicinity of the passenger station, between Lake street and Washington avenue, principally on the south side of the right-of-way. These walls, which have a total length of about 1150 ft. and a maximum height of about 12 ft., are all of gravity section.

The existing passenger station, which fits well into the new arrangement, is a one-story structure, 155 ft. long by 50 ft. wide, faced with artificial, glazed stone. Although constructed in 1912, the station is in good condition, and, to meet the new conditions, required only the construction of an 8-ft. passenger subway and a 12-ft. baggage underpass, with a baggage elevator, beneath the raised tracks. At the new track level, a concrete island platform, approximately 870 ft. long and 25 ft. wide, was provided between the two through main tracks. This platform, which is supported on concrete columns, surrounded by fill, is covered with a butterfly-type shed having structural steel columns and roof frame, and a board roof.

Another new unit provided at the station to better house certain existing auxiliary station facilities is a car service building constructed on the north side of the tracks and served by a new high-level siding. This building, which is of brick construction and two stories high, provides an ice room, a Pullman supply room and a car department office and shop, and has direct connection with the track platform by means of an eight-foot subway leading to the baggage elevator.

Girderless Flat-Slab Bridges

One of the most interesting features of the Elmira work is the type of bridge construction employed at the street crossings, which was adopted only after a most careful study of the advantages and economies of different types and designs. All of the undercrossing bridges are of the girderless flat-slab type, with four-way reinforcing, with columns at the curb lines and in

the center of the street, and with or without drop panels as the individual conditions required. Drop panels were omitted in the East Church Street and East Washington Avenue bridges to afford maximum headroom, but were employed in the other bridges because of the economy possible through them in the slab construction, in spite of the additional formwork required. All of the bridges were designed for approximately E-65 loading.

The Washington Avenue and East Church Street bridges provide 75-ft. widths of streets, and, with 3-ft. columns on 28-ft. centers, afford two 23-ft. clear roadways and two 10-ft. sidewalks. At East Church street, the angle of crossing is 66 deg. 17 min., and the four tracks carried are level and parallel. This condition, with a transverse column spacing of 24 ft. 8 in., called for a slab 2 ft. 4 in. thick at the center and 2 ft. 2 in. at the edges. At East Washington avenue, immediately beyond the west end of the station platform, there is a separation of the tracks, which required a bridge structure wider than that at East Church street. In this case, where the transverse column spacing is 22 ft. 6 in. to 24 ft. 4 in., the slab provided is uniformly 2 ft. 3 in. thick. Drainage of the slab here is taken care of by the grade of the tracks.

The bridge constructed at Lake street provides the same width of street as those at Washington avenue and East Church street, and has the same cross column spacing. However, as a result of employing 10-in. drop panels, the slab required was only 2 ft. 1 in. thick at the center and 1 ft. 11 in. thick at the edges.

At Sullivan street, the bridge constructed affords a 66-ft. street, with two 20-ft. clear roadways and two 9-ft. 6-in. clear sidewalks. This bridge carries four parallel tracks on a 2-deg. curve, and has an angle of crossing of approximately 48 deg. With column lines spaced 24 ft. center to center; a transverse column spacing of 21 ft. 6 in.; and utilizing 10-in. drop panels, the slab required for the Sullivan street bridge was only 1 ft. 11 in. thick at the center and 1 ft. 9 in. thick at the edges.

At Madison avenue a 67-ft. width of street was provided under the tracks, with columns spaced 23 to 24 ft. center to center along the street line and 26 ft. center to center in the opposite direction. The 10-in. drop panels incorporated in the design of this bridge permitted a uniform slab thickness of 2 ft., drainage being taken care of by the grade of the tracks.

All of the bridge decks were waterproofed with two plies of asphalt-saturated cloth, protected against puncture or abrasion from the ballast by asphalt blocks. All bridge abutments are of the gravity type, waterproofed with two applications of emulsified asphalt, the second coat containing asbestos fiber.

Large Economies in Bridge Design Adopted

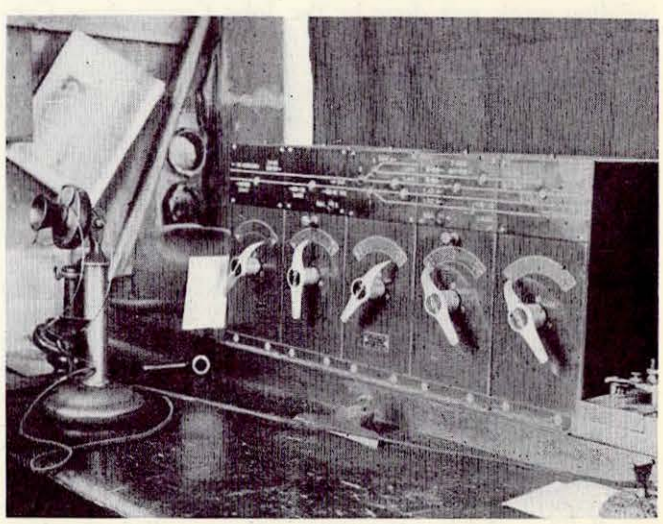
The four-way slab reinforcing adopted in the Elmira bridges resulted in a number of distinct advantages. These are especially well illustrated in the case of the Washington Avenue bridge, which lies immediately east of the freight yard. Here, with the depth of street depression limited by ground water and city sewers, each inch of additional track raise meant approximately 6,000 cu. yd. of additional fill. With columns 28 ft. center to center, as adopted at this point, a one-way reinforced slab, continuous over supports, would have had to be 3 ft. 6 in. deep, unless heavy compressive reinforcement were used, whereas, the use of a four-way slab, without drop panels (demanded by the city to provide maximum under clearance), required a slab thickness of only 2 ft. 3 in. This reduction of 15 in. in the depth of slab reduced the amount of grading required in the yard by approximately 100,000 cu. yd., and shortened the yard area affected by more than 400 ft. Furthermore, it reduced the depth of fill between the bridge and the yard, and also the height of the retaining walls required in this vicinity.

The New Inter-Track Passenger Platform, Looking Toward the Station

Another advantage offered by the flat-slab construction is that it presents no obstruction between the tracks, thereby obviating the necessity for widened track centers and greatly increasing the safety of operation. The level deck feature is of particular importance at Elmira because of the extensive switching which is done over the raised tracks in connection with the yard operations.

The overhead highway viaduct at East Water street was decided upon in preference to a street undercrossing because of the close proximity of Newtown creek. Here, with high ground water, which would have greatly limited any depression possible in the street, practically all of the required headroom would have had to be secured through track elevation. This would have been particularly undesirable since it would have required a major raising of the two-track main-line bridge which extended over the creek, a bridge which otherwise had to be raised only moderately in connection with the general track elevation project.

The viaduct built to carry the street consists of a through-girder span of 80 ft. over the four tracks of the



The Power-Operated Switches and Signals Are Controlled from a Desk Lever Machine

railroad, with a reinforced concrete, two-way slab and girder viaduct on each side, except over Newtown creek, where two 48-ft. spans of reinforced concrete T-beam construction were used. The structure provides a 36-ft. roadway with a 6-ft. sidewalk cantilevered from one side. This resulted in slab panels 36 ft. by 34 ft., except at one point where a wider roadway was required because of the intersection of a street.

As a result of carrying East Water street over the tracks, the railroad bridge over Newtown creek had to be raised an average of only 3 ft. 2 in. This bridge, a through riveted truss with a span of 142 ft. 11 in., was jacked up from temporary timber bents and set on new I-beam grillages, later completely encased in concrete.

Remotely Controlled Switches

In connection with the track changes, providing a westbound yard pull-in track on the north side of the elevated roadway and an eastbound yard pull-out track on the south side of the roadway, signal control facilities were installed which permit non-stop movements into and out of the yard and uninterrupted main line movements, under full signal protection. In the scheme employed, Union Switch & Signal Company, 24-volt electric switch machines of the dual-control type were installed at the three switches at the east end of the four-track layout, interlocked with the home signals at that point. The control machine, which is a Style B-10 table lever circuit controller, is located in a new yard master's office provided directly at the west end of the new passenger station platform. This machine has five working levers, three for switch operations and two for the control of signals. High signals of the color-light type, mounted on signal bridges, and dwarf signals, also of the color-light type, provide for fully controlled train movements on all tracks.

The work at Elmira was planned and carried out under the general direction of George J. Ray, chief engineer. John L. Vogel, bridge engineer, and M. Hirschthal, concrete engineer, were in direct charge of bridge design, while J. E. Saunders, signal engineer, was in direct charge of the signal work. The field engineering was done under the direction of D. R. Young, division engineer, assisted by H. W. Machemer, resident engineer, while all track work was done by company forces under the direction of the late A. J. Neafie, principal assistant engineer.

The grading and the construction of bridges and retaining walls was done under contract by the Walsh Construction Company, Davenport, Iowa, while the building work was done by the John Cunningham Contracting Company, Elmira.

Is Railway Passenger Service Properly Sold?

(*Continued from page 460*)

and has never been bothered with the details of the trip in any way except to state on what day he would leave.

Another type of special business upon which some railroads have concentrated is travel by women. One eastern road employs women solicitors whose duty it is to cultivate women's clubs, arrange tours and conventions and develop prospects who consult them whenever traveling is concerned.

In conclusion, the railways have a worth while service to sell. They also have an organization to sell the product. Only casual study is necessary, however, to show that this organization falls far short of possessing that type of salesmanship which other industries have found advantageous if not absolutely necessary, and at which some of the railways' competitors are rapidly becoming more adept than the railways themselves. The day when people came to the railway to "buy" transportation is rapidly passing. If the railways are to continue in the business of providing passenger transportation, they must develop that creative selling ability that underlies the success of other American industries in competitive fields.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended September 16 totaled 652,016 cars, an increase of 80,629 cars as compared with the week before, which included the Labor Day holiday, and an increase of 64,770 cars as compared with the corresponding week of last year. As compared with 1931 this was a decrease of 90,598 cars. All commodity classifications showed increases as compared with the holiday week but l. c. l. merchandise, grain and grain products, and livestock showed reductions as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, September 16, 1933

Districts	1933	1932	1931
Eastern	144,329	129,217	161,139
Allegheny	128,774	106,323	147,211
Pocahontas	47,673	40,832	48,153
Southern	87,039	88,078	103,175
Northwestern	96,227	74,168	105,387
Central Western	94,179	94,163	116,075
Southwestern	53,795	54,465	61,474
Total Western Districts	244,201	222,796	282,936
Total All Roads	652,016	587,246	742,614
Commodities			
Grain and Grain Products	31,457	35,890	40,190
Live Stock	20,065	21,706	24,906
Coal	124,805	106,792	123,005
Coke	6,571	3,472	4,606
Forest Products	25,219	18,050	26,563
Ore	40,081	6,558	29,855
Mdse. L. C. L.	172,371	176,948	217,912
Miscellaneous	231,447	217,830	275,577
September 16	652,016	587,246	742,614
September 9	571,387	501,537	667,750
September 2	666,652	561,325	759,871
August 26	631,998	537,767	763,551
August 19	634,845	518,440	748,600
Cumulative total, 37 weeks	20,109,226	19,755,430	27,205,959

The freight car surplus on August 31 averaged 398,451 cars, a reduction of 4,806 cars compared with August 14. The total included 105,915 coal cars, 236,850 box cars, 24,328 stock cars and 11,892 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended September 16, totaling 47,634, were 6,607 cars over the previous week's, but 7,889 cars under the total for the corresponding week last year. The holiday on September 4 affected the comparison with the previous week but the index number recorded a rise from 65.19 to 67.38.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 16, 1933	47,634	20,638
Sept. 9, 1933	41,027	18,442
Sept. 2, 1933	45,546	19,941
Sept. 17, 1932	55,523	17,954
Cumulative Totals for Canada:		
Sept. 16, 1933	1,352,991	675,902
Sept. 17, 1932	1,523,146	704,419
Sept. 12, 1931	1,783,915	955,986

High-Pressure Condensing Steam Locomotive Design

Proposed in Fuel Association committee report—Two sizes are specified, of 2,000 hp. and 3,000 hp. rated capacity and 15 per cent thermal efficiency

THE report of the Committee on Steam-Turbine and Condensing Locomotives, prepared for inclusion in the 1933 year book of the International Railway Fuel Association, presents a statement of the present status of this type of equipment in foreign countries. In the interests of fuel economy and generally improved motive-power performance, the report then proceeds to describe a new type of high-pressure condensing steam locomotive, designed in two sizes, of 2,000-hp. and 3,000-hp. rated capacity, respectively, and promising to provide a thermal efficiency of 15 per cent, or nearly double that of the conventional steam locomotive.

Owing to the development of high steam pressure and tractive force, as well as the fact that all of the weight is carried on the driving wheels, it is expected that this type of locomotive will provide rapid acceleration and be well adapted for switching, transfer, passenger or freight service. Since the design provides for practically smokeless and noiseless operation, greatly reduced standby losses and double-end control, it is also anticipated that this type of power will be particularly desirable and satisfactory for suburban service, providing practically the equivalent of electric operation.

The design of the condensing-type locomotive is intended to provide for operation practically 24 hours a day, since the cleaning of fires, dumping of ash pans and other work will not be necessary. The driving gear has been designed as nearly fool-proof as possible and particular attention paid to assure maximum reliability and freedom from maintenance difficulties. While the particular designs, included with the committee's report, have not been shown as streamlined, the committee states that this can be readily done, if necessary, to meet the requirements of light, high-speed train service.

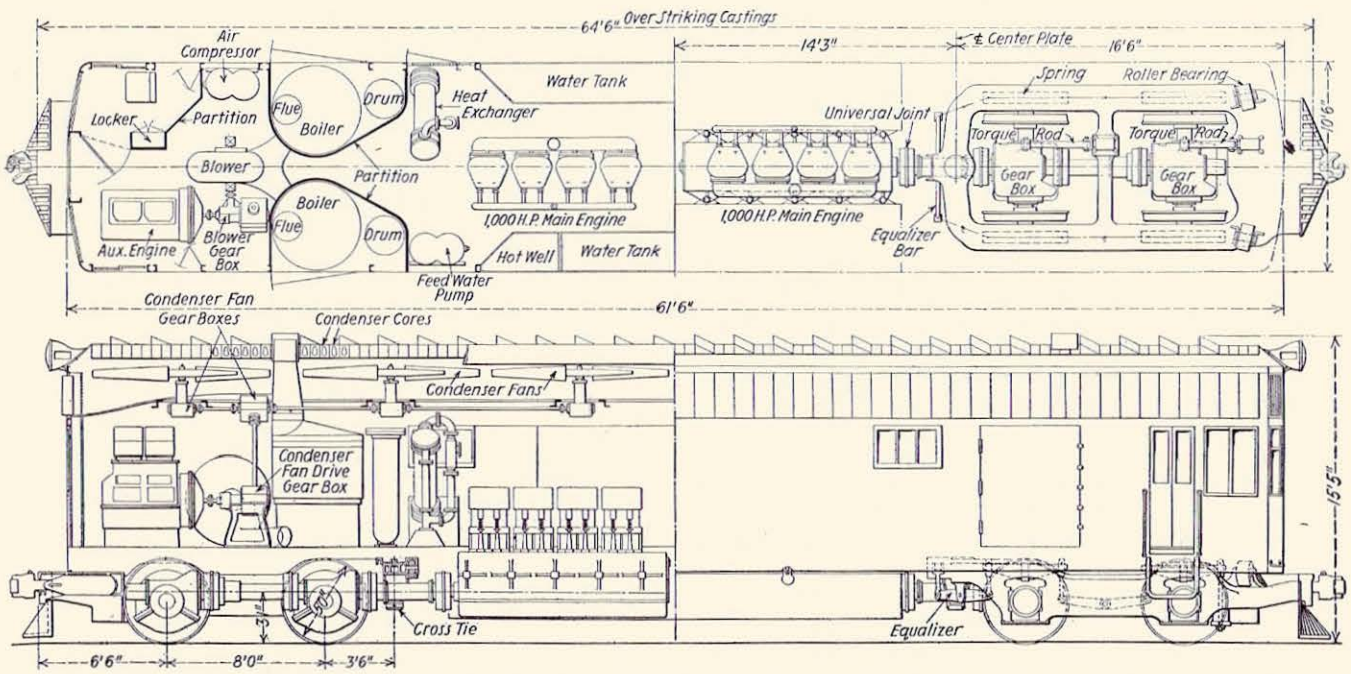
Principal Features of the Design

While the proposed high-pressure condensing steam locomotive is a radical departure from customary practice, it is a significant fact that the principal features of the design are all tested products, in commercial production, with details for this particular application worked out by the individual manufacturers and carefully coordinated by the committee. The four most important parts of the locomotive are as follows:

First.—The small, compact, light-weight boiler unit, suitable for generating high-pressure high-temperature steam at high efficiency, when operated with a high-efficiency smokeless oil burner. This equipment, both boiler and burner, as well as their application in the locomotive, was designed by Locomotor, Inc., 59 E. Van Buren street, Chicago.

Second.—The small but rugged multi-cylinder, high-pressure, high-efficiency, Uniflow steam engine, which can be operated under a wide range of speed and load conditions, with low steam consumption. This engine is a product of the Skinner Engine Company, Erie, Pa.

Third.—The air-cooled condenser of comparatively



General Arrangement Plan and Elevation of the 2,000-Hp. High-Pressure Condensing Steam Locomotive

light weight, low resistance to air passage through it, high efficiency and rugged construction, and operated in conjunction with high-efficiency air fans which will handle a large volume of air with small power requirements. This condenser was designed with the co-operation of the Thermal Units Manufacturing Company and the Soverhill Engineering Company, Chicago. The fans and fan drivers were designed by the Schwitzer-Cummins Company, Indianapolis, Ind.

Fourth.—The highly-efficient gear drive which will permit the power from the engines to be directly transmitted from the engine to the driving axles through drive shafts and hypoid pinions and gears to as many driving axles as are required to carry the weight of the locomotive. Details of this drive, as well as the axles, journal boxes and roller bearings, were worked out by the Timken Roller Bearing Company, Canton, Ohio, in conjunction with the Gleason Gear Works, Rochester, N. Y. The General Steel Castings Corporation, Granite City, Ill., co-operated in the design of the locomotive cast-steel main frame and cast-steel truck frame; also in the application of the gear drive to the truck frames.

Each of the locomotives referred to is designed in one unit to be carried on a one-piece cast-steel main frame. The 2,000-hp. unit is 67 ft. long over the coupler pulling faces, carried on two 4-wheel trucks, weighs 240,000 lb., and has a tractive force of 60,000 lb. The 3,000-hp. unit is 85 ft. 6 in. long over the coupler pulling faces, carried on two 6-wheel trucks, weighs 360,000 lb., and has a tractive force of 90,000 lb. These two sizes of locomotives compare in capacity with Pacific- and Mountain-type locomotives of the present standard design.

Each locomotive is equipped with two entirely separate power plants, one operating on each truck, and one, or both, operating from either end of the cab. The trucks support the main frame of the locomotive on three-point supports similar to the typical four-wheel trailing trucks now used in standard locomotive design. This construction minimizes the driving shaft angle when operating on curved track. A hand-operated disengaging clutch is provided between each engine and the nearest driving-axle gearing so that one power plant only can be operated, or both power plants can be cut out and the locomotive handled in a train without the pistons of the engines moving in the cylinders.

Axles and Driving Wheels

All axles in each truck are driven and are designed to be of 62,750-lb. capacity, the same as the A.R.A. "F" axle. Each axle has a hypoid gear and pinion enclosed in a metal casing which is carried on the axle by roller bearings.

The driving shaft from the engine is designed to pass over the driving axles. Torque rods, with a cushioning device in each rod, are provided. Each gear and pinion casing is oil-tight and provided with a geared oil pump to discharge a stream of oil at the contact point of the teeth when operating in either direction. This design and the method of lubrication contribute to noiseless and efficient gear operation.

The driving axles have outside journals, 7¼ in. by 13 in., with roller-bearing journal boxes and lateral-motion devices. The driving wheels consist of cast-steel wheel centers with steel tires having a maximum outside diameter of 50 in. Practically the same load will be carried on each axle of both sizes of locomotive, and, therefore, it is possible and desirable to make all wheel and axle details, as well as the driving mechanism, standard for both sizes of locomotive. The gear drive is such that the engines will run at about 650 r.p.m. when the locomotive is being operated at 60 m.p.h., or about 975 r.p.m. at 90 m.p.h.

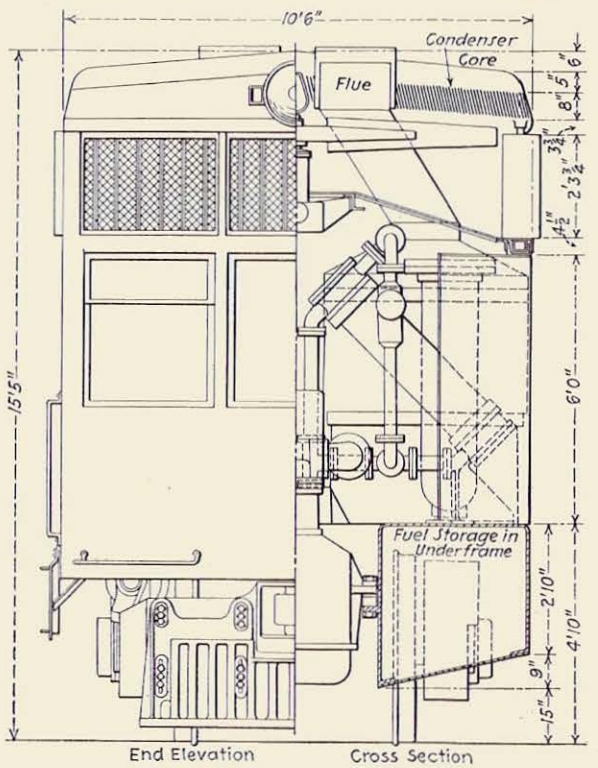
Boiler and Condenser Details

The boilers for furnishing the high-pressure steam are of the continuous-tube, two-pressure design, wherein the outer coils form a preheater section and the inner coils the evaporator section, with a steam superheater between the two sections. The boiler is built to operate at 900 lb. steam pressure, with safety valves set at 1,000 lb. and providing 850 lb. pressure at the engine throttle. The boiler diameter is 4 ft. 6 in. and four units are required in the 2,000-hp. locomotives, two installed in each end of the cab, providing steam for the adjacent unit-flow engine. Six boilers of identical design and capacity are required with the 3,000-hp. locomotive. These could be made larger and less in number, but the size indicated appeared best adapted for the available space in the locomotive cab.

The boilers at each end of the locomotive have a separate boiler feedwater pump, and each boiler has an automatic boiler feedwater control. The water from the condenser drains back into a hot well, where it will be maintained at 200 to 210 deg. F. before being pumped back into the boiler. An oil separator is used to remove the lubricating oil from the exhaust steam.

The steam condenser is located over the entire locomotive cab, being built of cast aluminum-alloy sections extending laterally from a central exhaust manifold on the center line of the locomotive to vertical drain pipes connected to drain headers at the sides of the locomotive cab. From these headers, the condensation is drained to hot wells, one located near each end of the locomotive cab. Water and fuel-oil storage is provided in the cast-steel underframe and in space in the cab at each side of the steam engines.

Under the condenser are located air fans 9 ft. in diameter, six for the 2,000-hp. and eight for the 3,000-hp. locomotives. The air for these fans is drawn in at the sides and ends of the locomotive through a continuous duct and discharged upward through the



Cross-Section Through the Locomotive Showing the Condenser and Fan Arrangement

condenser. Fan-protecting screens and adjustable deflecting louvers are provided. Three-speed double-gear and shaft drives to each set of three or four fans is provided from an oil engine located in each end of the locomotive cab. Each fan is designed for a capacity of 125,000 cu. ft. per min. at 320 r.p.m. The oil engines also drive the fan blowers for the forced draft for the boiler oil burners. The same kind of oil is used for the oil engines and the boiler oil burners, so that only one kind of fuel oil need be carried on the locomotive.

The Multi-Cylinder Uniflow Steam Engine

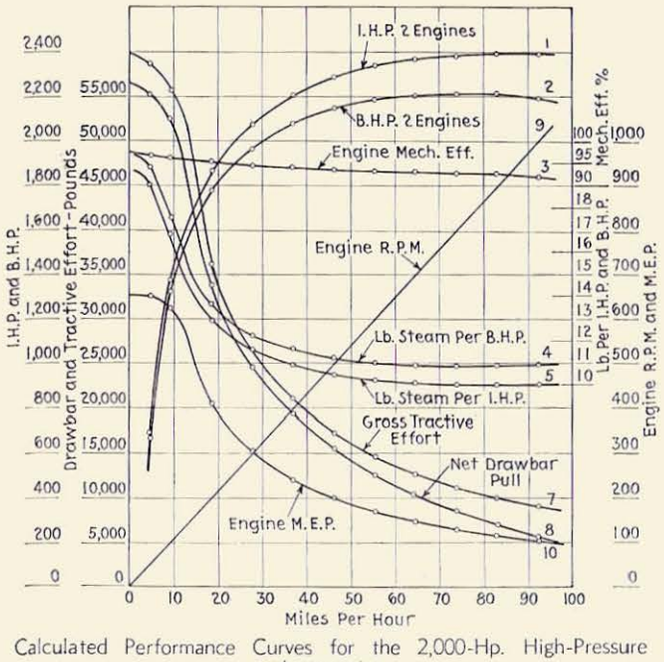
The steam engines for operating the locomotive are of the vertical, high-pressure, single-acting uniflow type, with cylinders in line. The 2,000-hp. locomotive is driven by two 1,000-hp. engines, each with eight cylinders having 8½-in. bore by 10-in. stroke. The 3,000-hp. size is driven by two 1,500-hp. engines, each having 12 cylinders with 8½-in. bore by 10-in. stroke. The steam valves for these engines are the double-beat balanced-poppet type, operated by cams on a cam shaft, geared from the engine shaft. These cam-shaft gears are of the helical type, designed to provide 60-per cent maximum cut-off for the steam valves in either direction. A uniform torque is provided, with an impulse every 45 deg. with the 8-cylinder engine and every 30 deg. with a 12-cylinder engine. The number and size of the cylinders are such that the regular operating cut-off is between 10 and 15 per cent.

An automatic control governor operates the cam-shaft gear so that the most efficient cut-off is assured for any given speed at which the locomotive is being operated. The cylinders, valves, rods, bearings, etc., for both sizes of engines are interchangeable. Under normal operating conditions, a steam consumption of about 11 lb. of steam per brake horsepower per hour is anticipated.

A heat exchanger is provided at each end of the locomotive to evaporate make-up water for the locomotive boiler feedwater, also to furnish steam for heating passenger-train cars. Two standard 8½-in. cross-compound air compressors are used for furnishing compressed air for the air brakes, air sanders, whistles and bell ringer. The brake cylinders are of the unit type, attached directly to the truck frames and operating clasp-type brakes. Standard steam-turbine electric generating sets are provided for head lights and cab lights and also for train lighting.

The driving wheels of this locomotive are perfectly balanced, permitting operation on tracks having lighter rails, switches and track structures. The weight of the condensing locomotive will be less than half the combined weight of engine and tender of the standard locomotive of the same capacity. It is estimated that the condensing locomotive will use between one-half and two-thirds as much fuel as the conventional steam locomotive and about the same amount or only slightly more than the internal-combustion engine locomotive of the same capacity. The cost of the condensing locomotive will be considerably more per pound than the standard locomotive, but the fact that it weighs only half as much will tend to make its cost per unit compare favorably with that of the standard locomotive.

This report was signed by Chairman L. P. Michael, chief mechanical engineer, Chicago & North Western, Chicago; G. S. Goodwin, assistant to general superintendent of motive power, Chicago Rock Island & Pacific, Chicago; W. O. Moody, mechanical engineer, Illinois Central, Chicago; and C. H. Bilty, mechanical engineer, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, Wis.



Calculated Performance Curves for the 2,000-Hp. High-Pressure Locomotive

July Purchases Reach $39,000,000

THE continued expansion in railway purchases is revealed by statistics of expenditures made by the railroads for materials and supplies during the month of July. According to reports received by the *Railway Age* from 46 railroad systems earning over 60 per cent. of the gross railway operating revenues, the Class I railroads of the United States spent approximately $39,000,000 for fuel and supplies in that month, a figure which confirms earlier forecasts that July expenditures for materials would exceed both the purchases of the preceding months of 1933 and those of July, 1932, by substantial margins. As the figures now stand, July purchases were approximately $6,000,000 higher than in January and approximately $10,000,000 or 27 per cent. higher than they were in April. They were also greater than the expenditures in any month since April, 1932.

Railway Purchases—Seven Months 1933

	Fuel	Ties	Other Material	Total	Total Less Fuel
January .	$15,300,000	$1,850,000	$16,150,000	$33,300,000	$18,000,000
February.	14,000,000	2,000,000	14,100,000	30,100,000	16,100,000
March ..	13,900,000	2,250,000	15,750,000	31,900,000	18,000,000
April ...	12,000,000	2,160,000	14,840,000	29,000,000	17,000,000
May	12,750,000	2,120,000	16,430,000	31,300,000	18,550,000
June ...	12,300,000	2,360,000	18,340,000	33,000,000	20,700,000
July	14,500,000	2,700,000	21,800,000	39,000,000	24,500,000

The supply bill in July, exclusive of expenditures for equipment and for contract work, included approximately $14,500,000 for fuel, $2,700,000 for cross ties, and approximately $21,800,000 for miscellaneous materials, including rail and repair parts for locomotives and cars. The latter figure is contrasted with expenditures of $16,150,000 in January, $14,100,000 in February, $15,750,000 in March, $14,840,000 in April, $16,430,000 in May, and approximately $18,340,000 in June. Of the 46 roads reporting July figures, 38 showed increases over June, as compared with 8 decreases.

The Work of the Federal Co-ordinator*

Purposes of the Emergency Transportation Act and its administration described

By Joseph B. Eastman
Federal Co-ordinator of Transportation

UP TO DATE I have not done much talking about my new work, because I hope that a little later on it will talk for me. The vital thing seemed to be to get it under way, for there is much to be done. The time has not come to disclose to you the solution of the transportation problem. Probably the time to say the final word never will come, for it is one of those problems, characteristic of life, which keeps on changing and continually demands a new answer. The important thing is to keep up with the procession, and my hope is to stimulate the forward movement and help to find the present-day answer. These metaphors may be a little mixed, but I think you understand what I mean.

Reasons for the Co-ordinator Legislation

All that I shall undertake to do tonight is to tell you of the work which I have under way and some of the things which I hope it may accomplish. I shall indulge in neither promises nor prophecies. Perhaps the best approach will be to state the central thought in the Co-ordinator legislation, as I understand it. The railroads of this country form a single transportation system. No railroad can live unto itself. It must work closely with its neighbors, interchange cars and participate in a multitude of through routes and joint rates. What we actually have is a single transportation system made up of a large number of parts separately owned by individual companies which to a great extent have independent managements and which to a considerable extent compete with each other. It is very like the situation which existed in this country prior to the Constitution and under the Articles of Confederation. These separate railroad companies are linked by associations or organizations of one kind and another, but these ties are very loose. Competition and individualism come first, and co-operation and co-ordination trail a long distance in the rear. There is more co-ordination of public regulation, although the co-operation of the States and the Federal government is by no means perfect, but what I am now talking about is management.

The growing competition from the trucks and the waterways and the troubles caused thereby brought this situation into sharp relief. The enemy was at the gate, but the guards were quarreling among themselves. Tens and even hundreds of millions of dollars were being squandered in the tactics and strategy of inter-railroad warfare. With plenty of extraneous competition available, the wastes of this internal competition were more readily seen. We began to perceive, also, that no matter how able and competent the railroad executives might be, they were hampered in adjusting the industry rapidly to meet new conditions by the difficulty in getting together and agreeing upon common policies. The Articles of Confederation were too weak.

This, I take it, was the genesis of the Co-ordinator idea. It was the thought that a Government agency could serve as a nucleus for co-ordination and co-operation. Serving as that agency, I have regarded myself, not at all as a director general of the railroads, but as a means of precipitating and activating the good, but often latent, ideas already present in the railroad world. In other words, reverting to my Connecticut valley education and to chemical terms, I am a catalyst. I refreshed my recollection of that word with the help of the dictionary, and I think it fits.

Labor-Saving Economies Barred for Present

The Emergency Act provided elaborate machinery for searching out economies in railroad operation and putting them into effect, and particularly those economies which can be brought about by proper co-operation and co-ordination. Unfortunately most such economies are of the labor-saving type, and the great, urgent need of the country at the present time is more rather than less employment. Not unnaturally, the bill was amended before it passed by restrictions upon reduction in railroad employment. On the one hand I was told to effect economies and on the other I was told not to deprive men of work. This converted me, to some considerable extent, from the doer of deeds into a prober of possibilities. The railroads must do much of the spade work in the search for economies, and this was contemplated in the Act. My organization is sufficient only to point the way, assist and check. Of course the labor restrictions had the effect of somewhat abating the enthusiasm of the railroads for this work. I am trying to stimulate it, and on the whole I have no quarrel with their response.

My conviction is that economies in railroad operation, whether labor-saving or otherwise, should not and will not be indefinitely postponed, and that any search for economies which is now pursued will have positive, ultimate benefits, even though they be deferred. I hold this belief for two reasons. In the first place, the railroad industry is in no position to endure waste of any character. There are too many kindly agencies which are ready to step in and substitute for it. It needs better service, and in many instances it needs to charge less for that service. I believe that this proposition is so inherently sound that labor must recognize it. In the second place, it is as fruitless in the long run to stay the march toward the accomplishment of work with less labor as it is to beat back the seas with a broom. In saying that, I appreciate fully the very serious problem which such progress involves. The welfare of the people of the country is the only thing of any real importance, and it is essential that a way be found to distribute the benefits of progress among all the people. If that be not done, there will not long be benefits to distribute to the few. In my judgment we shall find the way, because we shall have to find it.

In view of these labor restrictions, however, I am

*Address before the Springfield (Mass.) Traffic Club and Shippers' Advisory Board, on Thursday, September 28, 1933.

devoting especial attention to ways of improving railroad operations which either involve labor very little, if at all, or else are projects which bring in an element of improved service and are likely to offset economy of operation by increased traffic. To illustrate, one section of my organization is working on railroad purchases. There is little labor involved in that. At the outset, that section is chiefly accelerating sound work on which railroad associations and committees have for some time been engaged. I refer to standardization and reduction of the number of types of equipment and of many kinds of material and supplies. This work is in line with modern practice throughout the business world, and the opportunities for economies are large. There is no dispute over the principle, but the difficulty has been in bringing the many individual railroads into agreement. The Co-ordinator can accelerate agreement. Later on this section will take up other phases of purchasing methods.

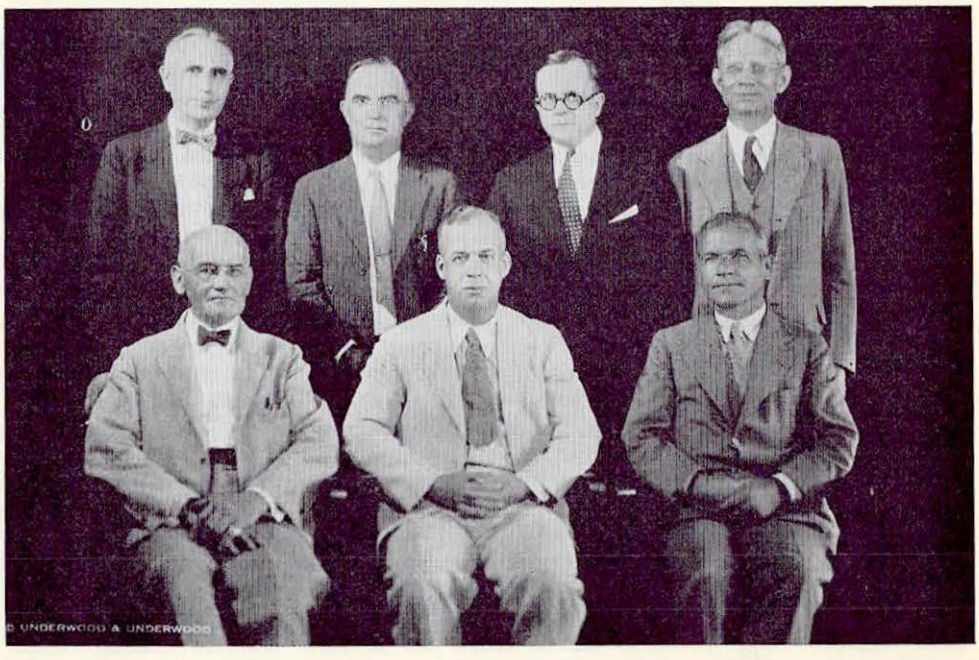
Another section is working on the old problem of the pooling of equipment, the object being the best possible utilization of cars and reduction in empty-car mileage and repair expense. That section is moving cautiously, accumulating facts and testing out the ground before it takes a forward step. It is dealing with a matter which has been the subject of bitter controversy and on which many railroad officers are very set in their views. I have picked men for this work who believe that much improvement is possible, and my guess is that they are right. But we aim to be sure of our ground before we go ahead. We shall rush into no controversies before we are armed with solid facts.

Improved Service Possible

But it is a further section of my work about which I particularly wish to talk to you, because it is very close to my heart, and I believe it will be to yours. When the Co-ordinator bill was before Congress, its labor critics voiced the view that it was only the expression of a cheese-paring policy and that its only result would be to cut down service and make it less attractive to the shipping and traveling public. This was far from my conception of the bill then, and it is still more remote now. I can think of nothing more important in railroad economy, using that word in its broad sense, than to make railroad service more attractive, more available, and more usable for both the shipping and the traveling public. The railroads are up against new conditions. The service which has been good enough in the past is not good enough now. There must be an adjustment and an improvement to meet the new conditions, and right there, as I see it, is a vital place for the Co-ordinator to strike. The railroad world is full of new ideas, and the Co-ordinator's job is to help them to emerge, to concentrate attention upon them, and to assist in co-ordinating them for practical and general use.

For that purpose I have created a Section of Transportation Service, and it is in charge of a man, taken from the railroad ranks, who is a dynamo of ideas and energy. At this point let me digress to say that I am proud of all of my staff, and if my work meets with any measure of success, the credit will in large part be theirs. I have found them creative, practical, faithful, and ready to work all hours of the day and night. Returning to the Section of Transportation Service, its broad task is to study the adjustment of service, both freight and passenger, to meet present-day conditions and needs and the selling of that service to the public. The object is not only the saving of expense but even more the provision of the kind of service which the users demand.

At present the section is concentrating on the merchandise and package service, including that which is performed by the railroads and also that which is performed by the two express agencies, the forwarders and the trucks. Without hesitation I can say that more comprehensive and complete steps have been taken to ascertain the underlying facts in regard to this service than have ever before been taken in this country and, so far as we know, in the world. The inquiries have gone to tens of thousands of shippers, to their traffic representatives, to the railroads, to their officers all down the line, both traffic and operating; to the express companies, to the forwarding companies and to the truckers. We shall know why shippers prefer one form of service to another, and the effect of rates, speed of service, store-door delivery, packing requirements and similar factors. We shall have the best available information in regard to the respective costs of rail and trucking service. We



Federal Co-ordinator Joseph B. Eastman and Staff

Seated (l. to r.): W. H. Chandler, eastern traffic assistant; Mr. Eastman; V. V. Boatner, western regional director. Standing (l. to r.): H. J. German, eastern regional director; C. E. Weaver, southern regional director; M. M. Caskie, southern traffic assistant; C. E. Hochstedler, western traffic assistant.

shall know the factors in rail service, such as terminal and interchange requirements, which tend to increase cost and lengthen schedule time, and consider the extent to which these factors can be eliminated or minimized. We shall have full information in regard to containers, demountable truck bodies, sectional cars, skid platforms, and all the other devices which are being developed for the improvement of rail and truck service. We shall consider the opportunities for the pooling of traffic or services.

I do not wish to anticipate the results of this study, because we shall formulate no final plans until the evidence is in and has been carefully analyzed. There will be no shots in the dark, if we know how to avoid them. I can say, however, that I am confident, on the basis of what I now know, that very important improvements can be made in the handling of this traffic and probably in the methods of charging for the service. I take this opportunity to say, also, that this work is by no means a mere attempt to bolster up the railroads at the expense of the trucks. Motor-truck service has a place in the transportation firmament which the railroads cannot fill, and it has come to stay. Any plan that we may develop will utilize trucks where they can do the job better than the railroads. The purpose will be to use both forms of service to the best advantage and co-ordinate them into a smoothly-working whole.

The situation as to less-than-carload or package freight is particularly acute because of the trucks and the car forwarders and also because of the great increase in hand-to-mouth buying in small quantities requiring quick delivery. However, there are aspects of the carload service which we believe will repay attention, and passenger service will also bear looking into. Much preliminary work has been done on certain lines of inquiry which we plan to follow up after we pass the peak of the less-than-carload study. Along with these inquiries will go one into what may be called the merchandising of both freight and passenger service. We shall look, very delicately and discreetly, into the methods of soliciting and procuring traffic, to see how the results correspond with the money spent, whether or not there are certain time-honored practices which are of no real benefit and can well be eliminated, and whether there are any improvements in methods which might be adopted with advantage. None of these inquiries, I may say, will be a mere fishing expedition, for they will all have very definite objects in view.

I have laid particular stress on this work of the Section of Transportation Service, because I feel so strongly the need for adjusting railroad service to the new conditions which have sprung up so rapidly in recent years. But I would not have you think that this work engrosses the attention of my staff. Before we get through, I believe that we shall have a very good picture of the economies in railroad operation which are possible through unification of terminal operation, joint use of facilities, the pooling of traffic or services, abandonment of lines or facilities which have outlived their usefulness, restrictions on circuitous routing, use of improved motive power, and the like. We shall also go into the matter of allowances and charges for accessorial services, insurance, loss-and-damage claims, changes in accounting methods, cost accounting, the extension of scientific research, and other matters which seem to call for attention.

I come now to another phase of the Co-ordinator's work which I believe is quite as important as the phase which I have been telling you about. The Emergency Act is a temporary affair. It was not designed as the final transportation word, so far as there can be any finality in such matters. On the contrary the Co-ordinator was directed to make a study of the whole transportation situation, including all the transportation agencies, with a view to making recommendations for further and more permanent legislation. There is nothing new about such studies. Official and semi-official and private bodies have been making them ever since transportation began. Very often they have done good work, but the actual results accomplished have seldom been impressive. I may have no better luck than the rest, but I hope that it will not be for lack of definite, specific recommendations or an adequate background of information.

Inquiries Being Made for Recommendations for Future

What those recommendations will be I cannot now tell you, because I do not know myself. I have a research organization at work which is endeavoring to accumulate what I believe to be the important basic facts and which will soon have many of them ready for my consideration. I shall try to tell you in a very brief and summary way what those lines of inquiry are.

The railroads claim that the motor vehicles and water lines compete unfairly, because they are in effect subsidized through free use of facilities provided at public expense. The claim is vigorously disputed. I am trying to find out the truth about this matter, not neglecting the gifts, grants and donations which the railroads have had. The question is whether there is a situation which needs correction and, if so, whether federal legislation can correct it. It is by no means as simple a question as many seem to think.

It is recognized that regulations are necessary for the protection of public safety and convenience in the use of the highways. Many States have provided such regulations. I am analyzing these regulations, and aim to find out whether a greater degree of uniformity is desirable, what it should be and whether federal legislation is necessary to attain that end.

There are federal laws providing for the protection of the wages and working conditions of railroad employees. I am endeavoring to find out whether those laws are adequate, and whether similar laws are necessary or desirable for other transportation agencies. This involves a study of the wages and working conditions of these other transportation agencies, as they now exist.

Railroads are very elaborately regulated with respect to rates, service, accounting, capitalization and many other activities by both Federal and State public authorities. Other transportation agencies are subject to much less public regulation. There is some Federal regulation of water lines, but it falls far short of the railroad standard. There is no Federal regulation of motor vehicles, but quite a little State regulation. The possible extension of Federal regulation over the other transportation agencies has received much attention in recent years. I am having the State experience with regulation of motor vehicles analyzed with care, to see what its successes and failures have been and what difficulties or objections have been encountered. A multitude of opinions upon the need for Federal regulation have been expressed and are on record, and the same is true of water lines and other transportation agencies. These opinions are all being considered, and other opinions are being sought. Basic data are being secured by questionnaires and in other ways. The whole subject is being canvassed as thoroughly as we know how.

Upon the other hand the railroads are seeking some relaxation of Federal regulation, and they will ask for more relaxation if their competitors are not regulated. Their claims in this respect are being investigated. Closely related is the question of the machinery and

methods of regulating the other transportation agencies, if they are to be regulated, and the means which may be taken to simplify and improve public regulation in general and speed up its motions.

The co-ordination of the various transportation agencies in a way which will avoid useless duplication and merely destructive competition is an ideal which is often voiced. It involves the question of whether there is a field which each transportation agency can occupy better than any other, and certain fields where it ought not to attempt to function. This gets down to a question of costs. It is an elusive subject, but we are attempting to run it down.

Turning from the other transportation agencies to the railroads, I have already pointed out that the railroads form a single connected transportation system, operated as a unit in many important respects. This was not originally the situation, but it has gradually become the fact under the impact of economic conditions and the requirements of law. The question arises whether the best way of conducting this single transportation system is to have it split up into many parts owned and managed by a large number of independent companies. This question has many aspects—economic, social, financial and legal. It brings in the credit question and the ability of our railroads, many of them heavily loaded with debt, to secure needed capital for the future. Allied to this is the question of property which must be abandoned and obsolescent equipment and facilities. It brings in the question of operating economies of huge amount which are claimed for various unification plans. Allied to this is the effect on labor and communities and the healthy development of all parts of the country. It brings in the question of attaining a management for this transportation system which can function without the handicap of a constant conflict of interests, wasteful competition and inability to agree readily upon common policies for the good of all. It brings in the question of possible Government participation in the management, ownership, or financial responsibility for these properties, in all of the various forms, major or minor, which such participation might take. It is a large order, but I am endeavoring to study all these questions, and have able men working on them.

Connected with this study, but important enough to deserve separate mention, is consideration of labor conditions, of means of stabilizing employment, of pension systems, of means of providing for workers who lose their jobs through the economy programs, and of means for improving the general relations between workers and managements. My organization is studying these subjects and obtaining much help from outside sources.

Finally, I am endeavoring to check my studies by knowledge of what the rest of the world is doing, both in the management and regulation of their railroads and in dealing with the modern problems which other transportation agencies present.

Perhaps this recital of the studies which are under way will give you the impression that so much is being attempted that the work is likely to end up in confusion. My experience has been, however, that in such work the time comes when the issues resolve themselves and are found to be less complex than they at first seemed, if proper watch is kept for the forest instead of the trees. I believe that it will be so in this case.

I have not mentioned certain other activities which are not specified in the law but have come my way, such as composing labor disputes, buying steel rail, considering whether the railroads are under the National Recovery Act, and other outside matters. I need hardly say that I am not in charge of the railroads. Nevertheless, these matters arise which someone has to handle, and I am quite willing to do the best that I can with them when they fall to my lot.

Let me in closing say that I have been much gratified by the hearty co-operation which I am receiving from the railroads, from the other transportation agencies, from the Interstate Commerce Commission, from other Government departments, and from shippers' organizations. While I have only a small staff, the opportunities for research have been vastly extended by the help which has been freely given from these other sources. The Commission has been most generous in lending aid. The railroads are not only furnishing the data which I am requesting, but they are giving me the services of numerous important railroad officers on various advisory committees. As for the shippers, my Section of Transportation Service has what it terms a shippers' advisory committee made up of 3500 of the leading industrial traffic men, and they have been liberal in supplying information and advice. These are illustrations of the help which I am receiving and for which I am most grateful.

Eastman Studying Merits of Consolidation Plans

WASHINGTON, D. C.

WITH a view to obtaining the benefit of differing views upon the merits of railroad consolidation and making a check of the possibility of large economies such as have been claimed for some ambitious consolidation plans, Joseph B. Eastman, federal co-ordinator of transportation, has undertaken a study of the subject which is in charge of a member of his staff, with the help of advisory committees of railroad operating officers in each region, as a part of the general investigation he is making for the purpose of a report to the President and Congress. The check will be based particularly on the Prince-Barriger plan, which was one of those submitted to the President for consideration while the emergency railroad legislation plan was under consideration early this year, and which he has selected as a typical example.

The carriers in each of the three regions have created organizations, headed by the Regional Co-ordinating Committees, which are investigating the economies in operation obtainable through joint use of facilities, the pooling of train service, and other similar means. Through this investigation, as checked and supplemented by the work of his own staff, the Co-ordinator expects to secure comprehensive information as to what can be done under existing conditions and without further corporate consolidation or unification of the railroad companies. "Various ambitious schemes have been suggested, however," he said in a statement issued on September 22, "for the concentration of the railroads, through corporate consolidation or other means, into a very few great systems or even into a single system. Typical of these schemes is the so-called Prince Plan, which might more appropriately be called the Barriger Plan, and which proposes to combine the railroads into seven or eight systems—two in the East, two in the South, and three or four in the West. Very large economies are claimed for these plans. For example, it has been claimed by the proponents of the Prince Plan that it would save something like $740,000,000 in operating expense on the basis of 1932 traffic, or about

30 per cent of the total operating expense for that year.

"The Co-ordinator believes that he should check the possibility of very large economies which is said to inhere in such consolidation plans, and for the purpose of such a check he has selected the Prince Plan as typical, in view of the fact that its claimed economies have been indicated quite definitely and it has been worked out in much more detail than any similar plan. It is the thought that such a check of the Prince Plan will serve the purpose of a general check upon schemes for the unification of the railroads into a very few or a single system, since the purported economies would in all of them be obtained in much the same way. In addition to the possible economies, the effect of such schemes upon labor and communities and upon the development of the country will be considered, and also their financial and legal aspects and practicability. It should not be understood that at this stage of his inquiries the Co-ordinator is in any way committed either for or against the Prince Plan or any similar plan. His present thought is merely that the claimed economies of such schemes are so great that they ought not to be disregarded but merit careful analysis."

This work is in charge of W. B. Poland, of the Co-ordinator's staff. The work has proved to be of such magnitude, however, that assistance is necessary. With the co-operation of the carriers, the Co-ordinator has secured the help of advisory committees in each region, made up of men whom he has personally selected. They have been chosen so as to obtain, in all probability, the benefit of differing views upon the merits of consolidation and the extent to which it can be carried with advantage. The Eastern Advisory Committee is made up of: D. F. Stevens, general superintendent of transportation, Baltimore & Ohio; J. D. Davenport, assistant to executive vice-president, New York Central; J. M. Symes, superintendent of passenger transportation, Pennsylvania; and S. E. Miller, assistant general manager, Boston & Maine.

The Western Advisory Committee is made up of: H. E. McGee, executive vice-president, Missouri-Kansas-Texas; G. R. Harding, assistant to president, Southern Pacific; H. R. Lake, general superintendent of transportation, Santa Fe; and H. R. Dougan, executive assistant, Great Northern.

The Southern Advisory Committee is made up of: J. F. Porterfield, general superintendent transportation, Illinois Central; T. W. Parsons, assistant general manager, Seaboard Air Line; and R. C. Parsons, superintendent of transportation, Louisville & Nashville.

Accident Bulletin No. 101

THE Interstate Commerce Commission has issued accident bulletin No. 101 for the calendar year 1932, a pamphlet of 88 large pages, summarizing with ample details the record of accidents on the steam railways. The main features of this record were reported in the *Railway Age* of April 22, page 594, as given in advance sheets. To the number of persons reported at the time as killed and injured, the present and complete record adds the record of persons who were reported as injured, but later recorded as dying—a total of 394 persons; 18 in train accidents, 376 in train service accidents. Of those in train accidents, two were passengers, which, added to the one reported killed, makes a total of three passenger fatalities due to train accidents in 1932.

The grand total of persons killed in train and train service accidents—4524—is by this supplementary statement increased to 4918. This includes 2602 trespassers.

Train accidents in the 12 months totaled 5770, including 1265 collisions, 3321 derailments and 1184 other accidents. Total damages to railroad property in these accidents, $7,303,037; total persons killed, 183; injured, 997. The summary for the preceding year, abstracted in the *Railway Age* of October 8, 1932, showed total damages to railroad property in railway accidents of $9,607,085.

Communications . . .

Advocating a Joint Nation-Wide Advertising Campaign

SAN FRANCISCO, CALIF.

TO THE EDITOR:

The people of the United States are transportation-minded. They "got that way" as a result of the automobile. The task of the railroads is to cause that "transportation mind" to think of the railroads as the means of transportation. This particular thought is continually emphasized by the frequent communications appearing in the *Railway Age*. The communication appearing in the issue of September 16 from Wm. S. Mahnken, Jr., is pertinent.

I believe one answer is national railroad advertising by all of the railroads as a group to stimulate railroad interest. This advertising should appear in national publications now widely used as a means of advertising many other forms of transportation.

Also, why not national radio broadcasting? I was particularly interested to read "Progress in Merchandising Railway Passenger Service" in the *Railway Age* of August 12, outlining a concerted joint effort on the part of all railroads to stimulate travel to the Century of Progress Exposition at Chicago. It has long been my thought that the railroad industry should have long ago adopted national radio advertising as a means of merchandising their business and also placing before the people of the nation their many problems.

The need for educating the traveling public was forcibly brought to my attention a few weeks ago. I had journeyed to a resort some 75 or 80 miles from my home. While there, I met an acquaintance who had made the same trip with his family, which included four children. The children ranged in ages from 6 to 12 or 14 years. These children are important! They are the future passengers of some transportation agency. I made the inquiry if the family had made the trip by automobile. The answer—"We always drive but this time we came down by train *because the children had never before been on a train.*" To which was added the further remark that they would, in all probability, not again make the trip by train because it required three hours, while the trip by automobile could be made in two hours. When those four children grow up they will be transportation-minded, but I am very much afraid they will not think of a railroad as a means of transportation.

When we look through the elaborate display advertising in many of our national magazines, we see many advertisements dealing with travel and the manner in which we should travel. Do these ads cover railroads? Possibly a few cover some individual railroad but I have yet to see an advertisement dealing with the railroad industry as a whole. Rather, these advertisements, which lead us to think of travel and/or a means of transportation, invariably lead us to think of airplanes, automobiles, trucks and stages.

This much needed railroad educational advertising can also briefly and concisely present many facts which the public should know of the railroad problems—taxes, grade crossing elimination, terminal investment, truck and water competition, and many, many other important facts that appertain to the railroad industry in its entirety—applicable to all railroads and not to

any one particular railroad. It also seems to me that an increase in satisfied rail passengers must certainly lead to additional shippers of freight—by railroad.

C. F.

Railroad Advertising

BALTIMORE, MARYLAND

TO THE EDITOR:

In the leading editorial in your issue of September 2, you ask this question:

"How much advertising is being done, or is going to be done, by the railroad industry, as compared with the automobile industry to make the traveling public realise the advantages of travel by rail, and to actually want to travel by rail, not on this or that particular railroad, but on any railroad?"

The answer is: No advertising of this kind is being done. Furthermore, none is going to be done unless railroad managers completely revise their conception of the proper function of advertising. It is not, as most of them seem to think, a knife with which to "do" competitors; it is a superb tool which can be used for all sorts of constructive purposes. But it must be used with much more skill than most railroads possess.

The fact that no railroad has ever used advertising with anything like the intelligence which many another industry has shown is no reflection on advertising. Rather is it a reflection on railroad management.

J. M. CAMPBELL.

Are the Railways Selling Service Which Pullmans Offer?

TO THE EDITOR:

Apropos of your article in the issue of September 16 entitled "Are the Railways Capitalizing on Pullman Service?", it may be of interest if I cite the following experience which I had a few months ago:

I arrived at Dallas, Texas, one evening last summer and tried to get a compartment or lower or what have you for St. Louis. Nothing but an upper, although, as I afterward learned, an officer of the railroad was occupying the drawing room.

On presenting my ticket at the gate I was asked what time I wished to be called and then discovered that my Pullman accommodations took me only to Little Rock. No suggestion from the ticket agent, train conductor or Pullman conductor as to what happened after that. The Pullman porter, however, came to my rescue and told me that another Pullman car, going through to St. Louis, joined the train just before we got to Little Rock. He called me in time, transferred my luggage, found accommodations and saw that I was taken care of, but there was not the slightest suggestion of help from anyone else, or attempt to sell Pullman accommodation beyond Little Rock.

F. LAVIS.

New Book . . .

Federal Regulation of Motor Transport, compiled by Helen M. Muller. 154 pages, 7¾ in. by 5 in. Bound in cloth. Published by the H. W. Wilson Company, New York. Price 90 cents.

This is a handbook designed to assist in the preparation of debates and public discussions on the subject of federal regulation of highway carriers. Arranged in a manner convenient for that purpose, it briefs an affirmative and a negative presentation for a debate on the subject, "Resolved that legislation should be enacted for federal regulation of motor transport;" it includes as well a bibliography and also reprints of articles giving typical affirmative and negative arguments on the question. The book is No. 9 of Volume VIII in "The Reference Shelf" collection, which collection has been published "to make available when needed good debates, collections of articles, briefs, bibliographies and study outlines on timely subjects for public discussion."

Odds and Ends . . .

Floral News

Flowering plants to no less a number than 45,000 were distributed last spring from the greenhouses of the Canadian National at Moncton, N. B., to stations in Nova Scotia, New Brunswick and Prince Edward Island. The flower-conscious station agents of the C. N. R. use them in beautifying the station grounds.

Fifty Years of Travel

Conductor James W. Smith of the Missouri-Kansas-Texas recently began his fifty-first year of service with the Katy, but if he were to quit today, he would already have behind him enough travel to satisfy several dozen ordinary men. During his 50 years on the railroad, Mr. Smith has covered an aggregate mileage of approximately 2,900,000. His long service is especially notable because of a completely unblemished safety record.

Historic Station Abandoned

The Pennsylvania station at Madison, Ind., is to be abandoned, to make way for a community center. No longer will it serve as a reminder of Indiana's earliest railway development. The first railway line west of the Alleghenies was called the Madison & Indianapolis, and was begun at Madison in 1836, although it was not until 1847 that the road was completed into Indianapolis. For years, the grade of the line into Madison was said to be the steepest railroad grade in the world. The drop was 473 ft. in 1¼ miles.

Railway Postage Stamps

Postage stamps bearing pictures of trains, terminals or other railway scenes have been found to number approximately 250 among the 200,000 major and minor varieties of stamps that have been issued since 1840, writes R. C. Bingham in the Illinois Central magazine. In this country, only six issues of this sort have been printed since July 1, 1847, the date of the first United States postal issue. The first railway stamp came out in 1869, and it was a three-cent blue stamp bearing the picture of a locomotive. This was duplicated in the following general issue of 1875. In 1898, the Trans-Mississippi issue included an eight-cent violet-brown stamp inscribed "Troops Guarding Train," the only pioneer railroad scene on a United States stamp. "Fast Express," the carmine and black two-cent stamp of the 1901 Pan-American Exposition commemorative issue, depicts the "Empire State Express." The two remaining issues are parcel post stamps, the five-cent stamp showing a mail train and the three-cent stamp a railway postal clerk at work in a mail car.

Rail—Air-Rail—Air Delivery

Speed is the goal of the air express service of the Railway Express Agency. Usually, this means air transportation for shipments of express matter but not infrequently airplane and train service are co-ordinated to insure that no time will be lost. Every now and then, in the process of co-ordination, a shipment gets tossed back and forth from train to plane until it doesn't know just where it is, but it gets there just the same. For example, the air service of the express agency recently received a shipment of auto parts to be handled by air express from Indianapolis, Ind., to San Salvador, capital of the Republic of El Salvador. The consignment left Indianapolis on the Monon at 5 p. m. and was taken by rail to Chicago where it was transferred to the United Air Lines for the trip to Dallas, Tex. At Dallas, the shipment was taken over by the Missouri Pacific for handling by rail to Brownsville, at which point Pan American Airways stepped in to take the shipment the rest of the way to its destination. Delivery was completed in less than three days. Of the total of 3,194 miles covered by the shipment between Indianapolis and San Salvador, 1,065 miles were by air transport and 2,129 miles by rail.

NEWS

Shippers' Boards Expect Increase in Carloadings

Estimate for the fourth quarter of 1933 predicts 15 per cent rise over last year

Freight car loadings in the fourth quarter of 1933 will be nearly 15 per cent above actual loadings in the same quarter of 1932, according to estimates just compiled by the thirteen Shippers' Regional Advisory Boards. On the basis of these estimates, freight car loadings of the 29 principal commodities, which constitute over 90 per cent of the total carload traffic, will be 4,920,561 cars in the fourth quarter of 1933, compared with 4,290,050 actual loading for the same commodities in the corresponding period last year.

Every one of the thirteen Shippers' Regional Advisory Boards, which include approximately 20,000 shippers throughout the United States, reported an increase in the estimated carloadings for the fourth quarter of this year compared with the same period in 1932.

The tabulation below shows the total loading for each district for the fourth quarter of 1932, the estimated loadings for the fourth quarter of 1933, and the percentage of increase:

Shippers' Advisory Board	Actual Ldgs. 1932	Esti- mated Ldgs. 1933	Per Cent Increase
Allegheny	540,588	705,448	30.5
Atlantic States	508,459	561,716	10.5
Central West	201,701	212,279	5.2
Great Lakes	210,518	287,353	36.5
Mid-West	642,673	698,231	8.6
New England	100,664	105,783	5.1
Northwest	178,534	233,924	31.0
Ohio Valley	615,331	711,323	15.6
Pacific Coast	153,706	173,251	12.7
Pacific Northwest	124,889	147,533	18.1
Southeast	396,938	438,913	10.6
Southwest	353,448	380,463	7.6
Trans-Missouri-Kansas	262,601	264,344	.7
Total	4,290,050	4,920,561	14.7

Of the 29 commodities covered in the forecast, it is anticipated that 23 will show an increase. They are: flour, meal and other mill products; hay, straw and alfalfa; cotton; citrus fruits; potatoes; poultry and dairy products; coal and coke; ore and concentrates; gravel, sand and stone; salt; lumber and forest products; petroleum and petroleum products; sugar, syrup and molasses; iron and steel; machinery and boilers; brick and clay products; lime and plaster; agricultural implements and vehicles other than automobiles; automobiles, trucks and parts; fertilizers of all kinds; paper, paperboard and prepared roofing; chemicals and explosives; and canned goods. The six commodities for which reductions are estimated are: all grain; cotton seed and products except oil; fresh fruits other than citrus fruits; fresh vegetables other than potatoes; live stock; and cement.

Of the commodities for which increases are estimated in the fourth quarter compared with the same period last year, those showing the largest increases are: ores and concentrates, 307.6 per cent; iron and steel, 50.4 per cent; automobiles, trucks and parts, 49.5 per cent; lumber and forest products, 24.9 per cent; machinery and boilers, 24.2 per cent; cotton, 23.7 per cent; brick and clay products, 22.5 per cent; and coal and coke, 15.1 per cent.

Where the Money Goes

State highway expenditures in 1932 amounted to $955,446,000, according to the U. S. Bureau of Roads. This expenditure, amounting to about one dollar out of every ten expended by state and local governments, gives some idea of where the money goes, has gone, and probably will continue to go in our rising costs of government.

The National Industrial Conference Board estimated the total state expenditures in 1929 at $1,990,000,000 and the local at $7,126,000,000, a grand total of $9,116,000,000. To this is to be added federal expenditures of $3,932,000,000, which brought the entire cost of government in that year to $13,048,000,000, or about $107.37 for every man, woman and child in the country. The cost of good roads was a substantial part of the total. . . .

We need more competent and impartial study of what we obtain for what we spend—and whether "we" or only part of us obtain it.

From the Wall Street Journal

Organization of Joint Marine Subsidiary in N. Y. Delayed

The question of the formation, by railroads serving New York, of a joint subsidiary which would take title to all railway marine equipment operating in New York harbor has been held in abeyance although the work of pooling marine operations under the direction of T. C. Mulligan, former manager of the Central of New Jersey's marine department, has continued since the plan for consolidating these operations was launched in July.

The original program contemplated the formation of a separate corporation which would own and operate the lighterage equipment but the formation of such a company has been delayed pending a study of legal and other matters which would be involved in a transfer of title to the equipment.

Steel Companies Agree To Bid for Rail Orders

Loans to railroads for maintenance and equipment are also under consideration

The administration's plan for inducing the railroads to place orders for a considerable tonnage of steel rail with the aid of loans to be made by the government through the Public Works Administration, contingent upon a reduction in price, apparently came to a head on Monday, September 25, when the executives of three leading steel companies were called into conference at the White House with President Roosevelt, Joseph B. Eastman, federal co-ordinator of transportation, and Donald R. Richberg, counsel of the National Recovery Administration, and agreed to submit competitive bids. Mr. Eastman submitted to the President figures he had collected from the railroad executives at the request of the President, through the American Railway Association, indicating a willingness to purchase between 600,000 and 700,000 tons of rail under such conditions, with a possibility of increased amounts provided favorable terms can be arranged, and the steel company executives, upon leaving the White House, indicated a willingness to offer some reduction under the present price of $40 a ton, in spite of the increase in their costs resulting from the recent adoption of a N. R. A. code, for sufficient tonnage at this time. The steel company officials were Myron C. Taylor, chairman of the United States Steel Corporation, Eugene G. Grace, president of the Bethlehem Steel Company, and L. C. Block, president of the Inland Steel Company.

It was stated afterward at the White House that the President requested all to bid on the rails and that all said they would do so; that he had indicated that he expected them to make the lowest possible competitive bids in view of the tonnage involved and the efforts of the government to promote stimulation of the capital goods industries with the aid of government loans.

The fact that an effort was being made to induce rail purchases by the railroads was recently disclosed at the White House and since then Mr. Eastman has been making a canvass of the situation. It is understood that the figures given by the railroads were predicated on the idea of a reduced price, as the President had indicated he thought rail prices had not come down as much as other prices during the depression, but the exact terms on which the railroad replies were based

have not yet been disclosed and it is understood the government has not yet indicated exactly the terms on which loans would be made. Purchase of anything like this quantity of rail would also require the purchase of a large additional tonnage of rail fastenings, which apparently did not enter into the discussions as to price, and on some of which the prices have recently been advanced.

Secretary Ickes, public works administrator, said that the interest rate and other terms of the loans to be made to railroads had not yet been determined but were still under discussion. He indicated that the interest rate would probably be 4 per cent which is the usual rate on loans from the $3,300,000,000 public works fund. He said he did not know the present price of steel rail but that he knew it was too high.

It is understood that the government is prepared to loan the money for the rail purchases and the required fastenings also on ten-year notes of the railroads, the interest for the first year to be deferred. Some roads are prepared to make purchases without borrowing from the government if they receive an attractive price. The 600,000 to 700,000 ton figure represents the total of the replies received from the railroads up to the time of the conference and other roads were still to be heard from, so it is estimated that the amount may be considerably increased before the bids are submitted by the steel companies. Mr. Eastman has been conferring on the subject with Col. Henry M. Waite, deputy administrator of the Public Works Administration.

Various plans for making government loans to railroads for the purpose of making up deferred maintenance and possibly also for new equipment have been under discussion all summer among officials of the Public Works Administration, the Reconstruction Finance Corporation, the Coordinator and representatives of the railroads, but the rail plan is the first to reach tangible form. There are possibilities of loans either by the Public Works Administration or by the Reconstruction Finance Corporation, because the restrictions included in the laws governing the two corporations are different. One plan considered involves the use of the equipment corporation organized last year by several equipment manufacturing companies to finance purchases of equipment with the aid of R. F. C. funds. Another, which has recently received some newspaper publicity, understood to have originated among economists in the National Recovery Administration, contemplates the formation of a government corporation to purchase equipment to be leased or sold later to railroads. Various other plans have been under discussion in the Reconstruction Finance Corporation, which has already loaned some $381,000,000 to railroads, but has received comparatively few applications in recent months for additional loans. Some definite developments are regarded as possible at an early date.

August Locomotive Shipments

August shipments of railroad locomotives from the country's principal manufacturing plants, as reported to the United States Department of Commerce, totaled three locomotives as compared with none in July, nine in August, 1932, and 16 in August, 1931. Unfilled orders at the end of August total 79 locomotives (75 electrics and four steam) as compared with unfilled orders for 111 locomotives (110 electrics and one steam) at the end of August, 1932. The foregoing statistics do not include data on locomotives built by railroads in their own shops.

Safety Section to Meet at Chicago

Means of bringing about still greater safety on the railroads will be discussed at the thirteenth annual convention of the Safety Section of the American Railway Association, which will be held at the Stevens hotel, Chicago, beginning Tuesday, October 3 and continuing until Thursday, October 5. Among the speakers on the program are F. E. Williamson, president of the New York Central Lines, R. H. Aishton, chairman of the board of the American Railway Association, M. J. Gormley, president of the American Railway Association; Dr. M. O. Lorenz, director of the Bureau of Statistics of the Interstate Commerce Commission, Lew R. Palmer, conservation engineer of the Equitable Life Assurance Society, and C. B. Boutelet, director of safety of the Wisconsin Public Service Corporation. Charles E. Hill, general safety agent of the New York Central Lines and chairman of the safety section, will preside.

Public Should Share Cost of Grade Crossing Protection

Upon reams of paper millions of words have been written on the subject of grade crossings by authors, unnumbered and unknown. Why do we continue to run in circles and, like a dog chasing his tail, fail to catch the point?

Definite specifications, generally agreed upon, have been laid down for the protection of highway-railroad grade crossings, but there has been delay in the universal application of the specifications because the public, as a state or subdivision thereof, accepts no financial responsibility for providing protection. According to the generally accepted opinion, a collision of train and automobile at a grade crossing is due to the presence of the train upon a railroad track and not to the presence of the automobile upon a municipal, county or state highway. The engineman has received a thorough training and passes a comprehensive mental and physical examination, periodically repeated, as assurance of his qualifications to operate a vehicle which cannot dodge, whereas rarely is an adequate test made of the qualifications of an automobile driver. Why should not the public, which through legally constituted authority has licensed the motor vehicle operator, be equally responsible with the railroad for financing the protection necessary at a grade crossing? If such financial co-operation could be secured there would be a marked increase in the number of crossings protected.

From a paper by E. Irvine Rudd, chief engineer, Public Utilities Commission of Connecticut; before a conference of state utility commission engineers at the Bureau of Standards, Washington, D. C.

R. B. A. to Hold Annual Dinner on November 9

The Railway Business Association will hold its twenty-fifth annual meeting and dinner on Thursday, November 9, at the Stevens hotel, Chicago. The general executive committee is to meet at 10:30 a. m. on that date, while the annual meeting will convene at 1.00 p. m. and the annual dinner at 7:00 p. m. The speaking program is to be the subject of a later announcement.

Policemen Abuse Pass Privilege

The Police Department of New York city has taken away from 593 employees of the department passes which have allowed them to ride free on railroads within the city limits, complaint having been made that these men retained their seats when they should have given them up to passengers who paid fares. Most of these persons were clerical employees, at headquarters, not wearing uniforms. On the Long Island, some had lent their passes to relatives who used them after having changed the identifying photographs on the passes.

Boston-Maine Airways

The Boston-Maine Airways, subsidiary of the Boston & Maine and the Maine Central, has announced its fall time-table, beginning September 24, under which there will be three round-trips each week day, between Boston, Mass., and Portland, Me.; and two round-trips every day, including Sunday, between Boston and Bangor, via Portland and Waterville. The company's airplanes each carry 10 passengers. The airplane service to and from Rockland, Me., has been suspended for the winter.

Special Committee to Observe Codes

The railroads have formed a special committee of purchasing agents to study the various codes being submitted to the National Recovery Administration which contain provisions likely to affect the prices paid by railways for materials and supplies or other conditions affecting the sales of such products. The committee consists of C. D. Young, vice-president of the Pennsylvania; D. C. Curtis, chief purchasing officer of the Chicago, Milwaukee, St. Paul & Pacific; and A. C. Mann, vice-president of the Illinois Central.

Campaign Against Railroad Hitch-Hikers

Harry L. Hopkins, administrator of the Federal Emergency Relief Administration, has asked the railroads to co-operate in a campaign to discourage the wandering of transients over the railroads and public highways. He pointed out in a memorandum that the states have set up machinery for meeting the relief needs of persons within their own borders but that the unprecedented increase in the number of transients in recent years has created a problem, and a large proportion of the

transients make use of the railroads in their travels, particularly in view of efforts that have been made to discourage hitch-hiking by automobile. He suggested a concerted plan to close the availability of the railroads to this type of traveler on a specified date, with publicity that it will be put into effect, to run along with a similar plan devised by the states informing the transients that highways will be closed to hitch-hiking and that vagrancy laws will be enforced.

Washington Sales Tax Constitutional

The supreme court of the state of Washington has upheld the constitutionality of the state occupational sales tax measure. Effective August 1, steam railways will be taxed 1½ per cent; electric railways, street railways and transportation systems within the limits of towns, 0.05 per cent; telephone and telegraph companies, 3 per cent; express companies, 2 per cent; and passenger and freight highway transportation companies, 1½ per cent. Stringent fines are provided in the act for those who attempt to evade proper returns under the law.

Reduced Canned Goods Rates Suspended

The Interstate Commerce Commission has suspended from October 1, until May 1, 1934, the operation of railroad tariff schedules published by Agents Toll, Boyd and Gomph, which proposed to reduce the rates on canned goods from 90 cents to 80 cents per 100 pounds, carload minimum weight 60,000 pounds, from Pacific Coast territory origins to destinations east of the Rocky mountains, including the Mississippi valley, to, but not east of a line drawn approximately from Detroit, Mich., through Cincinnati, Ohio, Chattanooga, Tenn., Birmingham, Ala., to Mobile, Ala. The commission had previously allowed a rail-water rate of 75 cents to go into effect.

New Equipment in Service

Class I railroads in the first eight months of 1933 placed in service 1,838 new freight cars, according to the Car Service Division of the American Railway Association. In the same period last year, 2,477 new freight cars were placed in service. The railroads on September 1 this year had 1,129 new freight cars on order compared with 1,423 on the same day last year. The railroads placed one locomotive in service in the first eight months this year compared with 35 in the same period in 1932. New locomotives on order on September 1 this year totaled one compared with five on the same day last year. Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

S. A. L. August Passenger Revenue Above That of August, 1932

August passenger revenues of the Seaboard Air Line were above those for the corresponding month of a previous year for the first time since March, 1929. The increase over August, 1932, was approximately $4,000, a gain of 2.76 per cent. Seaboard passenger traffic officers regard this showing as especially gratifying since, they point out, it was made despite the fact that the Century of Progress Exposition has this year diverted to Chicago a substantial amount of passenger business which the S. A. L. might otherwise have handled to Northern and Eastern destinations. Also, passenger train-miles operated by the Seaboard in August, 1933, were less by 15,000 than those operated in August, 1932, indicating an increase in the number of passengers per train.

New Industries on Missouri Pacific

A total of 216 new industries have been located on the Missouri Pacific lines during the first eight months of this year, the concerns having an aggregate capital investment of $3,567,690 and an estimated traffic of 308,761 carloads annually. Oil products and oil well supply companies lead, both in the number of new plants established and in the amount of capital investment, 66 such new plants having been constructed at a cost of $2,279,500. Other industries include warehouses, numbering 61, with an investment of $476,100; four cotton gins and compresses, representing a total investment of $36,800; 32 lumber, hardware and steel concerns, totaling $271,320; ten manufacturing and canning plants, $244,500; and 32 miscellaneous concerns with a total investment of $304,500.

Electric Railways in 1932

The Bureau of the Census has made public the results of a preliminary tabulation of the returns received from electric railway companies at the quinquennial census of electrical industries taken in 1933. These are for electric railways in operation during all or any part of 1932 and do not, except as to miles of motor bus route, include any data for bus lines operated by electric railways. Trolley bus data are included.

The totals for the United States which follow are preliminary and subject to necessary corrections after further examination of the returns:

United States totals:	
Number of operating companies	479
Miles of track operated	32,373.97
Miles of bus route (round trip)	20,527.40
Number of employees	184,613
Payroll	$283,642,745
Operating revenues	$606,621,915
Number of passengers carried (railway and trolley bus)	9,454,205,339
Car-miles operated	1,688,207,341

Santa Fe Purchases in Anticipation of Increased Prices

The Atchison, Topeka & Santa Fe is purchasing increased quantities of supplies and plans to buy more in anticipation of possible increased prices, according to Samuel T. Bledsoe, president and chairman of the Executive committee. Projects under consideration include the air conditioning of "The Chief", which operates between Chicago and California, prior to the summer of 1934. Mr. Bledsoe also expressed the intention of the Santa Fe to purchase not less than 35,000 tons of rails if the price is "right". He stated also that, with regard to a union passenger terminal at Los Angeles, the Santa Fe, the Union Pacific and the Southern Pacific had reached an agreement and had presented plans to the California Railroad Commission, which commission is expected to act upon the railroads' proposal within the next 10 days.

Readjustment of Lake and Rail Freight Rates Proposed

Examiners William J. Koebel and Arthur S. Parker of the Interstate Commerce Commission have submitted a proposed report recommending a readjustment of lake-rail class rates and rates on certain articles related thereto, in lieu of the rates proposed by the carriers in purported compliance with the commission's orders in the western trunk line and eastern class rate cases. The rates were originally suspended, after protests, but were allowed to go into effect on March 20, 1932, pending further investigation.

The proposed report recommends a disruption of the rate parity, Duluth, Minn., with Chicago, Ill., by reducing the spread, Duluth over Chicago, on Class I rates to and from New England and practically all of trunk line territory from 25 cents to 10 cents. It also recommends that the Twin Cities rates on Class I be made 30 cents over Duluth dock rates from and to all affected eastern territory. The bases proposed are generally differentials below corresponding all-rail rates.

Examiner Recommends Readjustment of Proposed Export and Import Rates

Examiner Harris Fleming, of the Interstate Commerce Commission, has recommended in a proposed report that the commission find that schedules filed by the railroads to become effective March 3, 1932, and later dates, proposing a new basis of export and import rates between the Gulf, South Atlantic, and Florida points and interior territory, have not been justified, and order them canceled without prejudice to the filing of new schedules conforming to the views expressed in the report. Between the ports and a portion of the territory it was proposed to cancel existing export and import rates and leave the domestic rates as the applicable basis. The operation of the schedules, the examiner finds, would in some instances result in no change but generally would result in rates higher or lower than the existing rates, the amount of the change often being marked. The rates were suspended and their effective date has since been postponed to October 3, 1933.

New Code for Motor Trucks Filed with NRA

The American Trucking Associations, Inc., on September 23 submitted to the National Recovery Administration a revised proposed code of fair competition for the trucking industry, which is a combination of those heretofore proposed by the American Highway Freight Association and the Federated Trucks Associations of America, and it is expected to be scheduled for hearing at Washington at an early date before Deputy Administrator Malcolm Muir. It is intended to apply to the carriage of property for hire by means of motor vehicles, teams and drays, and, in addition, all persons operating motor vehicles, teams, and drays not for hire, in so far as their operation of such vehicles is concerned, except as

Continued on next left-hand page

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they elect in this particular to be covered under the code of some other industry and provided such other code does not provide longer hours of service or lower schedule of minimum wages. Exceptions are made, however, as to farmers transporting their own farm products or supplies and companies performing transportation for themselves. Subdivisions of the industry, natural and territorial, have filed or are in process of filing separate appendices as to hours of labor, rates of pay, and fair practices, but the general provisions of the proposed code provide for a maximum of 48 hours a week for drivers, etc., but with special provision for a seasonal increase not exceeding an average of 48 hours a week over a three months period. There is also an alternative basis which makes 1,060 miles of travel with a truck equivalent to 48 hours of labor and another provision for an adjustment with the approval of the proposed code authority of the association "to conform with maximum hours of different competitive forms of transportation agencies which are under the supervision of the Interstate Commerce Commission, public utilities commissions and/or such governing regulatory bodies as may exist," which apparently is intended to allow as much as 16 hours a day.

It is declared to be an unfair practice to transport property, except for a recognized charitable organization, at less than reasonably compensatory rates under efficient operation, as may be determined for each locality and each region by local or regional code authority under methods promulgated by the National Code Authority with the approval of the National Recovery Administration.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States *

Compiled from 149 Monthly Reports of Revenues and Expenses Representing 150 Class I Steam Railways

FOR THE MONTH OF JULY, 1933 AND 1932

Item	United States		Eastern District		Southern District		Western District	
	1933	1932	1933	1932	1933	1932	1933	1932
Average number of miles operated	240,861.53	241,923.68	59,463.57	59,729.55	45,804.31	46,142.46	135,593.65	136,051.67
Revenues:								
Freight	$240,172,201	$179,856,070	$103,388,901	$73,933,934	$47,738,913	$32,726,073	$89,044,387	$73,196,063
Passenger	30,964,116	32,713,266	18,210,341	19,486,211	3,288,508	3,230,566	9,465,267	9,996,489
Mail	7,333,733	7,868,844	2,826,151	3,105,267	1,272,819	1,320,647	3,234,763	3,442,930
Express	2,678,268	2,845,137	1,035,616	1,390,160	357,256	326,751	1,285,396	1,128,226
All other transportation	6,608,832	6,214,625	3,593,000	3,643,282	550,918	419,511	2,464,914	2,151,832
Incidental	5,409,253	5,312,872	2,890,054	3,006,901	755,971	682,657	1,763,228	1,623,314
Joint facility—Cr.	739,153	767,124	218,733	246,288	187,490	164,884	332,930	355,952
Joint facility—Dr.	197,257	246,754	47,404	65,266	21,416	20,497	128,437	160,991
Railway operating revenues	293,708,299	235,331,184	132,115,392	104,746,777	54,130,459	38,850,592	107,462,448	91,733,815
Expenses:								
Maintenance of way and structures	30,401,012	29,449,033	12,022,545	11,212,329	5,871,784	5,052,398	12,506,683	13,184,306
Maintenance of equipment	51,670,754	47,983,351	23,854,221	21,060,544	9,675,448	8,756,550	18,141,085	18,166,257
Traffic	7,177,058	8,011,022	2,707,318	3,078,022	1,336,434	1,457,855	3,133,306	3,475,145
Transportation	91,883,965	90,044,813	43,083,628	41,482,686	15,376,980	14,276,440	33,423,357	34,285,687
Miscellaneous operations	2,042,783	2,262,762	1,009,627	1,073,369	205,921	219,128	827,235	970,265
General	11,924,385	12,485,804	5,113,402	5,424,163	2,041,287	2,101,753	4,769,696	4,959,888
Transportation for investment—Cr.	191,459	422,777	53,317	171,178	20,384	35,166	117,758	216,433
Railway operating expenses	194,908,498	189,814,008	87,737,424	83,159,935	34,487,470	31,828,958	72,683,604	74,825,115
Net revenue from railway operations	98,799,801	45,517,176	44,377,968	21,586,842	19,642,989	7,021,634	34,778,844	16,908,700
Railway tax accruals	23,505,048	23,872,896	10,228,247	10,307,589	4,278,426	4,132,952	8,998,375	9,432,355
Uncollectible railway revenues	80,680	73,118	33,325	34,235	9,697	14,224	37,658	24,659
Railway operating income	75,214,073	21,571,162	34,116,396	11,245,018	15,354,866	2,874,458	25,742,811	7,451,686
Equipment rents—Dr. balance	7,665,110	7,298,361	4,158,652	3,555,172	248,821	134,929	3,257,637	3,608,260
Joint facility rent — Dr. balance	3,241,895	2,985,379	1,725,879	1,577,698	439,519	333,360	1,076,497	1,074,321
Net railway operating income	64,307,068	11,287,422	28,231,865	6,112,148	14,666,526	2,406,169	21,408,677	2,769,105
Ratio of expenses to revenues (per cent)	66.36	80.66	66.41	79.39	63.71	81.93	67.64	81.57

FOR SEVEN MONTHS ENDED WITH JULY, 1933 AND 1932

Average number of miles operated	241,146.92	241,755.38	59,532.91	59,723.25	45,847.62	46,181.34	135,766.39	135,850.79
Revenues:								
Freight	$1,374,876,547	$1,406,382,261	$587,646,788	$614,259,938	$286,527,239	$270,718,580	$500,702,520	$521,403,743
Passenger	180,966,807	233,987,888	107,928,108	138,553,795	21,837,608	27,563,957	51,201,091	67,870,136
Mail	52,512,006	56,802,669	20,575,943	22,404,238	9,046,391	9,661,961	22,889,672	24,736,470
Express	25,480,005	32,529,658	10,524,955	14,573,351	5,396,032	5,921,141	9,559,018	12,035,166
All other transportation	40,950,068	46,965,521	22,979,689	27,152,566	3,629,798	3,803,939	14,340,581	16,009,016
Incidental	30,787,848	38,277,741	17,410,411	22,407,152	4,564,934	5,108,987	8,812,503	10,761,602
Joint facility—Cr.	4,659,988	5,439,254	1,497,205	1,824,930	1,049,936	1,022,490	2,112,847	2,591,834
Joint facility—Dr.	1,298,852	1,683,070	357,064	481,663	127,706	131,864	814,082	1,069,543
Railway operating revenues	1,708,934,417	1,818,701,922	768,206,035	840,694,307	331,924,232	323,669,191	608,804,150	654,338,424
Expenses:								
Maintenance of way and structures	177,897,476	217,959,520	69,640,046	88,503,736	36,505,999	42,652,300	71,751,431	86,803,484
Maintenance of equipment	330,433,739	373,902,496	146,665,466	169,961,236	62,972,667	68,298,875	120,795,606	135,642,385
Traffic	49,850,722	59,187,841	18,436,404	22,865,314	9,594,940	10,957,549	21,819,378	25,364,978
Transportation	610,541,915	696,781,935	282,883,285	328,104,707	103,957,605	113,738,586	223,701,025	254,938,642
Miscellaneous operations	12,937,347	17,217,829	6,506,464	8,600,205	1,543,694	2,047,902	4,887,189	6,569,722
General	83,807,080	94,221,086	35,998,042	41,202,812	14,270,930	16,184,454	33,538,108	36,833,820
Transportation for investment—Cr.	1,618,472	2,572,051	621,475	913,402	185,679	182,037	811,318	1,476,612
Railway operating expenses	1,263,849,807	1,456,698,656	559,508,232	658,324,608	228,660,156	253,697,629	475,681,419	544,676,419
Net revenue from railway operations	445,084,610	362,003,266	208,697,803	182,369,699	103,264,076	69,971,562	133,122,731	109,662,005
Railway tax accruals	157,603,101	170,009,447	65,832,529	69,673,570	29,866,349	31,977,139	61,904,223	68,358,738
Uncollectible railway revenues	564,875	544,656	230,930	209,971	71,657	81,347	262,288	253,338
Railway operating income	286,916,634	191,449,163	142,634,344	112,486,158	73,326,070	37,913,076	70,956,220	41,049,929
Equipment rents—Dr. balance	49,209,615	50,304,824	24,631,728	24,998,666	4,024,324	3,283,398	20,553,563	22,022,760
Joint facility rent — Dr. balance	20,969,533	20,244,078	11,224,330	10,793,575	2,324,307	2,093,714	7,420,896	7,356,789
Net railway operating income	216,737,486	120,900,261	106,778,286	76,693,917	66,977,439	32,535,964	42,981,761	11,670,380
Ratio of expenses to revenues (per cent)	73.96	80.10	72.83	78.31	68.89	78.38	78.13	83.24

* Excludes switching and terminal companies. Statements prior to January, 1933, included switching and terminal companies.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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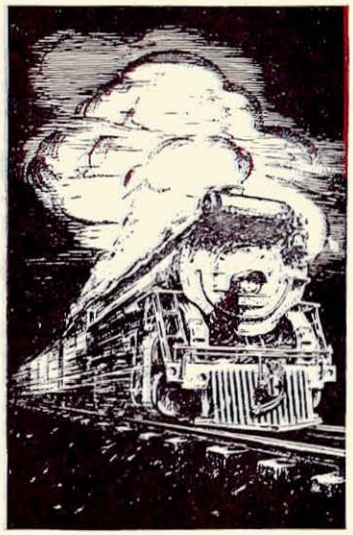
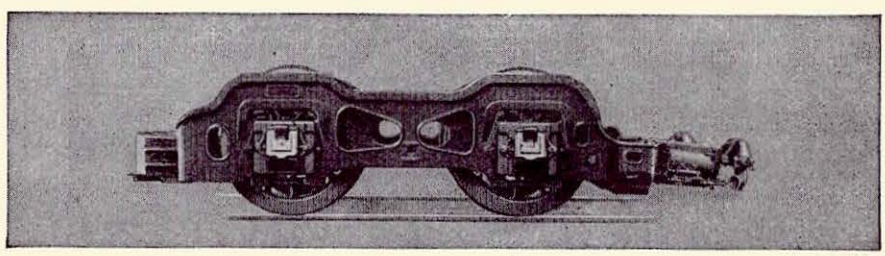


The OLDER LOCOMOTIVES *Must Be* PUT ASIDE

Among the 10,000 locomotives now awaiting classified repairs, only a small number is fitted for further service.

In the days of lean traffic, the best locomotives on the road were worked exhaustively to produce ton miles at the lowest possible cost. Now that traffic is increasing and more locomotives are needed, the less efficient power cannot keep down costs.

New power, equipped with all the power and speed increasing factors, is needed to get full benefit of improved traffic. This power will incorporate The Locomotive Booster as a fundamental part of the design since this is the way to secure maximum power per pound of weight and lowest operating and maintenance costs.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

Mississippi Drainage Area Board

The appointment of the Mississippi Drainage Area Board to study previous reports and surveys of the Mississippi river valley and its tributaries and to recommend a national program of development has been announced by Federal Administrator of Public Works Harold L. Ickes. The personnel of the Committee is as follows: Charles H. Paul, Dayton, Ohio; Herbert S. Crocker, Denver, Colo.; Samuel M. Woodward, Iowa City, Iowa; H. Solon Graves, New Haven, Conn.; and Harlan H. Barrows, Chicago, Ill. A representative of the Chief of Engineer's office of the Army, not yet designated, will be an ex officio member of the Board. The ultimate object of the newly-appointed board will be to correlate and co-ordinate the various projects which have been recommended from time to time for the complete development of the Mississippi river valley and its tributaries. A number of individual projects have been approved by the Public Works Administration recently and by Congressional authority in former years. These projects, which also affect tributaries, are now to be considered in relation to each other.

Excursion Business on Southern Reached Peak Over Labor Day

Week-end excursion traffic of the Southern reached a peak for this year over the Labor Day holiday when more than 35,000 passengers took advantage of the road's one-cent-per-mile fares, which were in effect on September 1-4 between all points on the Southern system as well as to many other destinations in the South, East and North. The increase over the 1932 Labor Day passenger traffic was 75 per cent, while the increase in revenue was at a corresponding rate.

In noting the foregoing results, Southern passenger traffic officers point out that satisfactory results are also confidently expected from forthcoming excursions which are scheduled for the week-end of October 6 and for the Thanksgiving holidays.

In order to improve its Aiken-Augusta-Asheville service, the Southern, on September 24, shortened by 1 hr. the running time of its Train 31 between New York and these Carolina and Georgia points. The running time between Washington, D. C., and these points has been shortened by 35 min.

May Adjust Cleveland Union Terminal Rentals

F. E. Williamson, president of the New York Central and of the Cleveland Union Terminal indicated, in a statement issued on September 20, that the latter company was disposed to adjust its rental charges in order to induce non-tenant railroads serving Cleveland to use the Terminal as a passenger station. Mr. Williamson's statement also revealed that negotiations in this connection are now being conducted with the Baltimore & Ohio.

"It was the original thought in the construction of this terminal that it would be generally used as a union passenger station by practically all of the major lines," Mr. Williamson said. "The terminal company recognizes the fact that under changed conditions rentals and operating charges must generally be offered on a basis other than that originally contemplated, and that this is the policy which will be followed in negotiations with prospective tenant lines.

"There have been some negotiations with the Baltimore & Ohio looking toward the use of the terminal by that line, but no conclusion has been reached."

Northwest Shippers' Board

Carloadings in the Pacific Northwest in the final quarter of 1933 will be 26,766 cars, or 16.3 per cent, greater than the actual loadings for the same period of 1932, according to estimates of requirements submitted at the annual meeting of the Pacific Northwest Shippers' Advisory Board at Portland, Oregon, on September 22. An atmosphere of optimism, which has been lacking during the last three years, pervaded the meeting, as the committees reported better prospects. Higher loadings and anticipated particularly in automobiles, agricultural implements, grain and smelter products.

Paul A. Scherer, Medford, Ore., was elected president of the organization to succeed J. A. Swalwell. Another new officer was Frank M. Smith, Spokane, Wash., chairman of the Metals, Mines and Smelters committee, who was elected vice-president, while those re-elected were: Ernest Dolge, executive secretary, and R. E. Clark, secretary. Speakers at the meeting were: W. D. Beck, manager of the refrigerator department of the American Railroad Association, and C. E. Hochstedler, traffic assistant to V. V. Boatner, western regional director on the staff of the federal co-ordinator of transportation.

Colorado Commission to Protest Railroad Abandonments

In the future the State Public Utilities Commission of Colorado will refuse to represent the Interstate Commerce Commission during hearings on railroad abandonment cases so that it will be free to "intervene in every case in the interests of the people along the line," according to a statement made by the state commission on September 16. The statement was made in connection with an abandonment case of the Denver & Rio Grande Western, which has been seeking permission to cease operations on certain of its branch lines because of the losses that such operation has incurred. "The policy of the present administration of the Denver & Rio Grande Western is to develop the transcontinental route, rather than the railroad system of the state as a whole," said the statement. "We are finding that an ever increasing number of petitions are being filed for abandonment of short lines so that eventually Colorado's railroad system might be confined entirely to transcontinental lines. This may be a great thing for stockholders of the roads, but is centainly a poor thing for the residents along the roads."

The commission stated that the interest-bearing securities of the D. & R. G. W. total slightly more than 120 million dollars, although the valuation for rate-making purposes as determined by the Interstate Commerce Commission is only 102 million dollars, and the valuation for tax purposes is only 39 millions.

"Any consideration of abandonment of parts of the line which considers valuation of the line as a whole must take into consideration that the future of the road is dependent upon cutting this burden of interest and amortization," the statement read.

Committee on Decentralization of Industry

The Committee on Decentralization of Industry, a subcommittee of the Business Advisory and Planning Council for the Department of Commerce, established several months ago by Secretary Roper, held a meeting in Washington on September 27, largely for organization purposes. W. A. Julian, treasurer of the United States and chairman of the subcommittee presided. The prime purpose of the committee, according to Mr. Julian, is to permit free discussion leading to further study of problems in the field of decentralization which the committee decides are of sufficient importance to warrant detailed attention. Some of our industrialists, according to Mr. Julian, have begun to feel that large scale enterprises with thousands of men in a single plant may not be the most efficient and profitable form of operation. Other business leaders have indicated very keen interest in the fundamental social problems associated with the present tendency of great concentration in certain areas with the corresponding sparsity of activity in other wide regions of the country. In the opinion of Mr. Julian, the subject of decentralization appears to be growing in interest and importance.

No Agreement on Passenger Rates Reached at N. Y. Meeting

Railroad executives from all sections of the country met in New York on September 27 to consider proposed reductions in basic passenger rates. That no definite agreement was reached was revealed in a statement issued after the meeting by F. E. Williamson, president of the New York Central.

Mr. Williamson's statement follows:

"At a meeting of committees representing the Eastern, Western and the Southeastern roads, a general discussion of the railroad passenger rate situation was held. A great many local situations developed and these received consideration.

"Progress was made but no conclusion was reached, particularly as the Southern roads have not as yet formulated a definite program. Further meetings of these or other committees will be held at which an attempt will be made to bring about a uniform agreement."

The Eastern Presidents' Conference, at a meeting in New York on September 21, had appointed a committee to confer with executives of Western and Southern railroads on the question. Members of this Eastern committee are F. E. Williamson, president of the New York Central; W. W. Atterbury, president of the Pennsylvania; J. J. Bernet, president of the Chesapeake & Ohio; Daniel Willard, president of the Baltimore & Ohio; and J. M. Davis,

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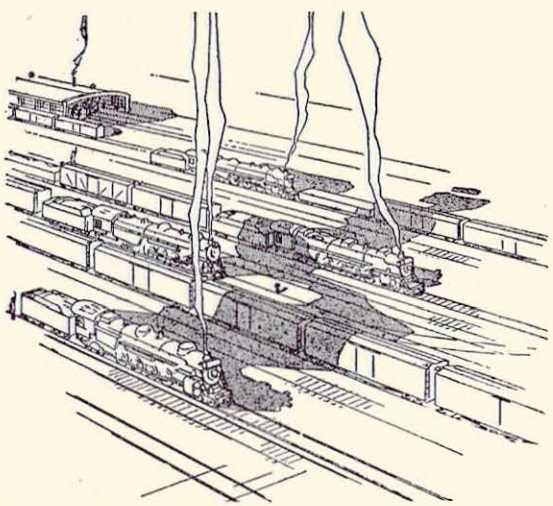

Locomotive Arch performance is what you really buy — brick is only part of the picture.

Design, study of individual combustion conditions and service supervision are also essential to assure satisfactory performance in the locomotive.

Every step from design to checking Arch Brick service must be adequately covered.

American Arch Company contributes a broad knowledge of railroad conditions and an intensive study of locomotive combustion. It knows what is needed to give long life to Arch Brick.

This experience gives assurance that Arch Brick will be exactly suited to the conditions encountered; that Arch design will be correct; that the railroad will get the utmost out of its Arch Brick.

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president of the Delaware, Lackawanna & Western.

While no details of this September 21 discussion were officially revealed it is understood that, if reduced passenger fares are to be inaugurated, the Eastern executives would favor a rate—the same for both Pullman and coach travel—of three cents per mile one-way, and two cents per mile round-trip. Such a plan would also contemplate the abolition of the Pullman surcharge.

The proposal now being voted upon by Western roads, as announced in *Railway Age* of September 23, contemplates a rate of two cents a mile in coaches and three cents in Pullman cars, with the elimination of the surcharge.

Equipment and Supplies

FREIGHT CARS

THE ARMOUR CAR LINES are inquiring for prices on 500 standard beef refrigerator cars. The decision to buy depends on prices quoted.

THE ST. LOUIS-SAN FRANCISCO has been authorized by the United States District Court at St. Louis, Mo., to dismantle 3,000 obsolete freight cars at a cost of approximately $45,000.

THE LEHIGH & NEW ENGLAND has authorized the dismantling of 273 box cars of 30 tons' capacity and 62 box cars of 40 tons' capacity, and has sold for dismantling 33 hopper cars of 50 tons' capacity and 197 gondola cars of 40 tons' capacity.

IRON AND STEEL

WABASH.—See item under Construction.

STEEL COMPANIES AGREE TO BID FOR RAIL ORDERS.—See item elsewhere in news department of this issue.

THE ATCHISON, TOPEKA & SANTA FE has ordered 350 tons of structural steel for a bridge at Ashland avenue, Chicago, from the Hansell Elcock Company.

THE CLEVELAND, CINCINNATI, CHICAGO, & ST. LOUIS has ordered 100 tons of steel from the American Bridge Company, for a bridge at Urbana, Ill.

MISCELLANEOUS

THE NEW YORK, NEW HAVEN & HARTFORD has equipped two of its dining cars with air-conditioning equipment supplied by the B. F. Sturtevant Company, Boston, Mass.

THE LOUISVILLE & NASHVILLE, on September 15, recalled 250 car repair men to its South Louisville shops and 125 to its Boyle's shops near Birmingham, the reason for re-employment being an increased demand for freight cars, especially coal cars.

Supply Trade

The Wilson Engineering Corporation, Chicago, has been appointed distributor for the **Taylor Forge & Pipe Works.**

The Ernest E. Lee Company, 115 South Dearborn street, Chicago, has been appointed representative in the Chicago territory for the **Beaumont Birch Company,** Philadelphia, Pa.

Ross F. Hayes, manufacturers agent, has been appointed eastern sales agent, transportation department, of the **Radel Leather Manufacturing Company,** Newark, N. J., for the sale of its upholstery leathers in the transportation field. Mr. Hayes, who was formerly, for many years, with the Curtain Supply Company and the Adams & Westlake Company will continue to have his headquarters at 50 Church street, New York.

Proposed Codes Submitted to N. R. A.

Companies engaged in furnishing materials and supplies to railroads are concerned with many of the proposed codes of fair competition recently submitted to the National Recovery Administration, although many of them are included in industries of more general scope.

The code submitted for the railway safety appliance industry covers the business of the design, development, manufacture, sale, and installation of power-brake, signal, and train-control systems and apparatus, appliances, and parts, which have for their object the safeguarding of movements of cars, locomotives or trains. The administration of the code is to be under the direction of an executive committee consisting of seven members and is to continue in effect for 90 days and thereafter during the period of the life of the national industrial recovery act unless terminated by a vote. A minimum wage of 40 cents an hour is proposed, unless the rate was less on July 15, 1929, in which case that shall be the minimum, but in no event shall the rate be less than 32 cents an hour. A maximum of 40 hours a week, averaged over a six month period, is also proposed.

The Railway Tie Association has submitted a proposed code for the tie industry, proposing the creation of an administrative committee to administer it, with the president of the association as chairman, including representatives of district committees and two members at large. The committee would be empowered to require reports as to wages, hours of labor, conditions of employment, number of employees, production, shipments, stock on hand, and other data necessary for the proper administering of the code, to be collected through a disinterested agency and be treated in a confidential manner. The code provides for a maximum of 40 hours labor per week but with a proviso that the administrative committee may authorize employment in a seasonal operation for a maximum of 48 hours, with the exception of parts of an operation depending on climatic conditions, in which greater excess may be authorized provided that the average employment in any seasonal operation in any calendar year shall not exceed the standard schedule. Minimum rates of pay are proposed ranging from $14 to $15 per week with a provision that in towns and rural districts of less than 2,500 population all wages shall be increased by not less than 20 per cent if this does not require wages more than $10 per week. Employers are not to reduce wages of employees now receiving wages between the minimum and $35 a week.

The administrative committee, under the provisions of the proposed code, would establish a standard form and method of accounting for the purpose of determining costs and each regional committee would determine and report to the administrative committee average current minimum costs at principal producing points in each region. These costs are to be revised from time to time as conditions warrant and sale at prices less than the minimum cost thus established in each regional district would be considered an unfair method of competition. Provision is made, however, that ties may be sold at less than the minimum costs where they will not meet the standard specifications adopted by the Railway Tie Association and the American Railway Engineering Association. It is stated that nothing in the code is to be construed as an intent to fix the selling price of ties, but it is intended to prevent or punish any flagrant offenses of selling below cost, depressing wages or other compensation as may be generally observed throughout the industry.

The National Machine Tool Builders' Association has submitted a proposed code, which has been set for hearing on October 2 before Deputy Administrator Malcolm Muir, containing a provision that every manufacturer shall establish and announce his own prices for his standard product, which shall then be the list or published prices to be quoted to all customers, with no deviation until changes are made by filing notice with a supervisory agency. The American Machinery and Tool Institute has also filed a proposed code for the machinery and tools industry in association with the Machinery and Allied Products Institute.

The Malleable Founders' Society has submitted a code which has been assigned for hearing on October 2 before Deputy Administrator H. O. King. The American Institute of Steel Construction has submitted a code for the structural steel and iron fabricating industry and the Steel Plate Fabricators' Association has submitted one for the steel plate fabricating industry.

The code submitted by the National Steel Tank Association has been set for hearing on October 6 before Deputy Administrator Muir.

OBITUARY

Lloyd F. Layne, president of Layne & Bowler, Inc., Memphis, Tenn., pump manufacturers, died at Memphis on September 7, at the age of 41 years.

Myles B. Lambert, transportation sales manager of the Westinghouse Electric & Manufacturing Company, died sud-

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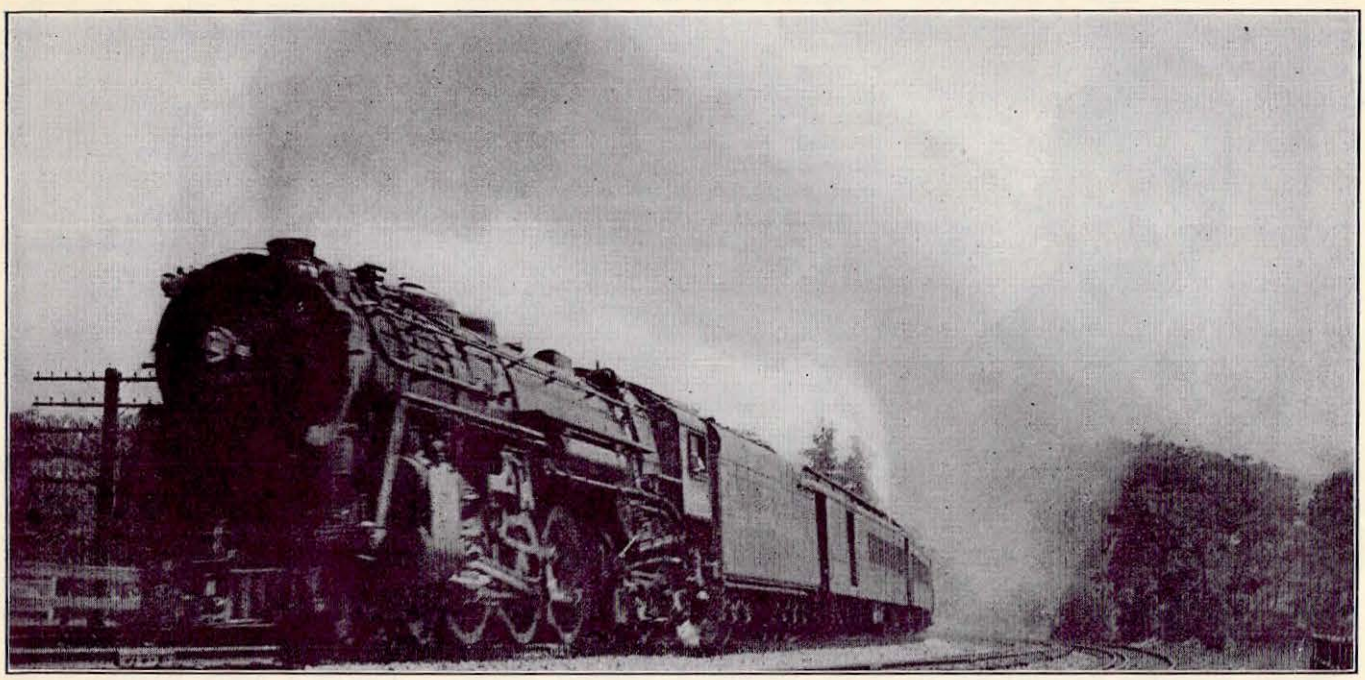
Why Waste All the Exhaust Steam ?



This locomotive doesn't—it is equipped with an Elesco feed water heater

A CERTAIN amount of exhaust steam up the locomotive stack is needed to create draft—but 15 per cent can be diverted without any effect on the draft.

The heat in this amount of exhaust steam, when returned to the boiler by the Elesco feed water heater, will reduce your fuel bill by 15 per cent for the same capacity. Elesco feed water heaters are saving fuel or increasing capacity correspondingly on nearly 4,000 locomotives. WRITE FOR PARTICULARS.

ELESCO

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Feed Water Heaters

Exhaust Steam Injectors

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denly on September 25 at his home in Jackson Heights, Long Island, N. Y. Mr. Lambert was born in 1873 at Roslyn, Long Island, N. Y. At an early age he entered the service of the Long Island as a brakeman. He later was telegraph operator and then assistant in a switch tower where he completed his course in telegraphy. Two years later he went with the Kings County Elevated Railroad as a ticket agent and telegraph operator, and was promoted through the positions of train clerk, train dispatcher and trainmaster, until within five years he had become division superintendent. In March, 1900, Mr. Lambert began a special two-

Myles B. Lambert

year apprentice course in the Westinghouse Works. On completion of this course he entered the construction or service department on railway work, being principally engaged in the installation of multiple control apparatus on elevated, subway and interurban lines. During this time he was foreman in charge of wiring one of the test cars for the New York subway. About 1904 he returned to railway operating work as personal representative of F. H. Shepard on the Chicago Elevated Railroad work. In 1907 Mr. Lambert went with the Long Island in charge of electric car equipment, but stayed with this company only one year, returning to the Westinghouse Company as a special railway expert, reporting to the assistant to vice-president. In 1909 he entered the railway sales department as head of the railway equipment division and then was promoted through the positions of manager, equipment division; assistant to manager, railway department, and from assistant manager to the managership of the department. On April 1, 1926, he was appointed transportation sales manager.

TRADE PUBLICATION

VALVES.—In a new catalogue, No. 23, Jenkins Brothers, New York, presents complete details of design, construction and use relative to about 400 styles and sizes of valves which it manufactures. In addition, the catalogue contains much engineering data required by those who specify and use valves.

Construction

ATCHISON, TOPEKA & SANTA FE—SOUTHERN PACIFIC—UNION PACIFIC.—The Santa Fe and the Union Pacific have submitted to the California Railroad Commission an application for approval of plans for the construction of a union passenger terminal in the Plaza area of Los Angeles, Cal. This move brings to an end many years of controversy between these railroads and the Southern Pacific concerning a site for the proposed terminal. In agreeing upon the so-called set-back plan for a station in the Plaza area, the railroads agreed "to forego the material economic advantages to be derived from the construction of a union passenger terminal in accordance with the North Broadway plan." The railroads have also accepted the city's offer to contribute not to exceed $1,000,000 for grading and the construction of grade separation structures and street paving in the vicinity of the station. Although not a party to the application, the Southern Pacific agreed not to oppose the plan as submitted. The proposed station will face Alameda street on the west, with the station tracks paralleling the station on the east and terminating in a stub-end arrangement at Aliso street, which also marks the southern boundary of the station. The station will have 15 platform tracks with provision for the construction of six additional tracks, and the passenger platforms will be connected with the station concourse by means of a passenger subway.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to the T. S. Leake Construction Company, Chicago, for the reconstruction of the roof over 32 stalls of this company's 49-stall enginehouse at Cedar Rapids, Iowa.

GULF, COLORADO & SANTA FE.—Bids were received on September 29 by the United States War Department, Galveston, Tex., for the construction of a reinforced concrete and steel bob-tail swing-span bridge, having a span of 100 ft., to carry the tracks of this railroad across the Intracoastal Canal between Beaumont, Tex., and Galveston.

SOUTHERN PACIFIC.—Bids will be received on October 9, by the California State Highway Commission for the construction of a highway underpass on the Southern Pacific 1½ miles east of El Monte, Cal.

WABASH.—A contract for furnishing 110 tons of structural steel to be used in the construction of a reinforced concrete and steel subway to carry state highway No. 77 under the tracks of this company near Robertson, Mo., has been awarded to Stupp Brothers Bridge & Iron Company, St. Louis, Mo. A contract has also been awarded to the American Bridge Company, Pittsburgh, Pa., for furnishing 170 tons of structural steel to be used in a highway subway at Raymond, Ill. The estimated cost of the first-named project is $60,000, while the latter structure is estimated at about $20,000.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Abandonment.*—This company and the California, Arizona & Santa Fe have applied to the Interstate Commerce Commission for authority to abandon the line between Kramer, Calif., and Johannesburg, 27.79 miles.

ATLANTA, BIRMINGHAM & COAST.—*Trackage Rights.*—The Interstate Commerce Commission has authorized this company to abandon operation under trackage rights over 1.7 miles of the Southern in Atlanta, Ga., and likewise to abandon use of the facilities of the Atlanta Terminal Company. Instead it is authorized to operate over a similar mileage of the Nashville, Chattanooga & St. Louis and to use that company's passenger station in Atlanta.

CALIFORNIA & OREGON COAST.—*R. F. C. Loan.*—This company has withdrawn its application to the Reconstruction Finance Corporation for a loan of $5,718,565.

CHESAPEAKE & OHIO.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its branch line between Garrison, Ky., and Carter, 19.74 miles.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch extending from Luverne, Minn., to Doon, 27.6 miles. Traffic on the line has declined sharply because of the competition of motor vehicles.

CHICAGO & NORTH WESTERN.—*Conditions of R. F. C. Loan Modified.*—The Interstate Commerce Commission has modified the conditions under which it permitted this company to borrow $3,862,000 from the Reconstruction Finance Corporation to meet in part on October 1 maturity of $7,724,000 6 per cent bonds of the Fremont, Elkhorn & Missouri Valley. The condition was that "substantially all" of the holders of these bonds would have to assent to the plan before the R. F. C. could advance the loan, and this is changed to permit advances on the loan when holders of bonds equivalent to twice the total of all advances have assented to the plan. The company reported that 89 per cent of the holders have assented to the plan, and 97 per cent of those whom it has been able to reach.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*R. F. C. Loan.*—This company has withdrawn its application to the Reconstruction Finance Corporation for a loan of $2,500,000.

DENVER & RIO GRANDE WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of a branch line extending from a point near Sand Pit, Utah, to Wasatch, 6.8 miles.

GULF & SHIP ISLAND.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $5,280,000 of refunding and improve-

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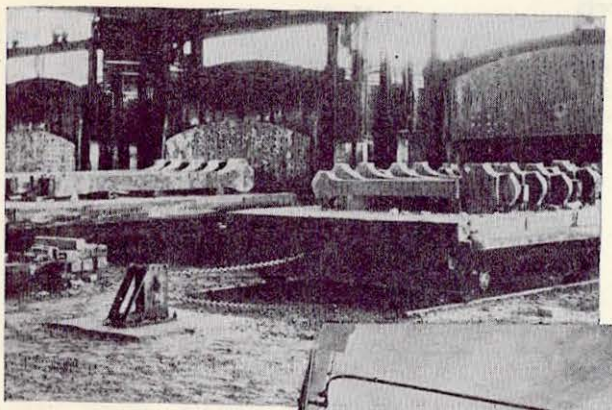
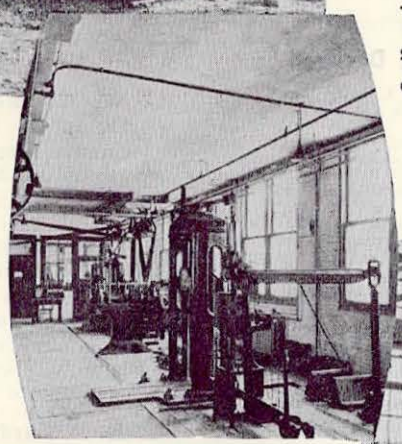
The Recognized High Quality of Alco Forgings is Consistently and Uniformly Maintained . . .





SERVING more reliably and for a greater length of time, Alco Forgings bring you real tangible economies that lower your locomotive maintenance and operating costs.

Alco Forgings backed by years of forging experience, quality materials, metallurgical research and scientific manufacturing methods with ultra-modern equipment give greatest insurance against engine failure and enable your locomotives to produce maximum ton-miles for the fewest maintenance dollars.

That extra measure of dependability to stand the severe stresses of hard service is the result of Alco's principle and established practice to produce forgings which have

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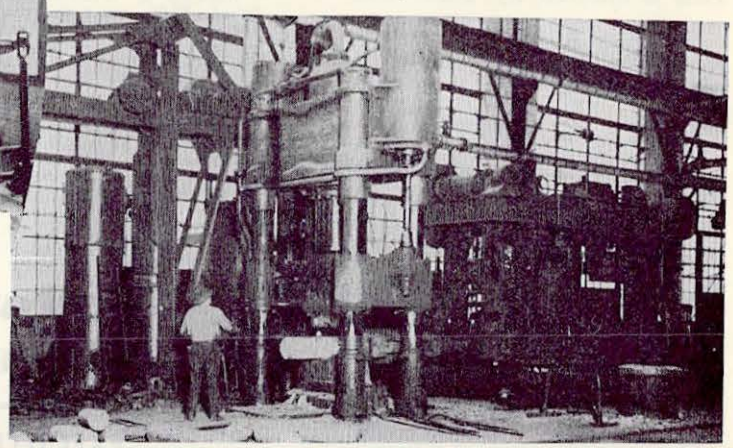

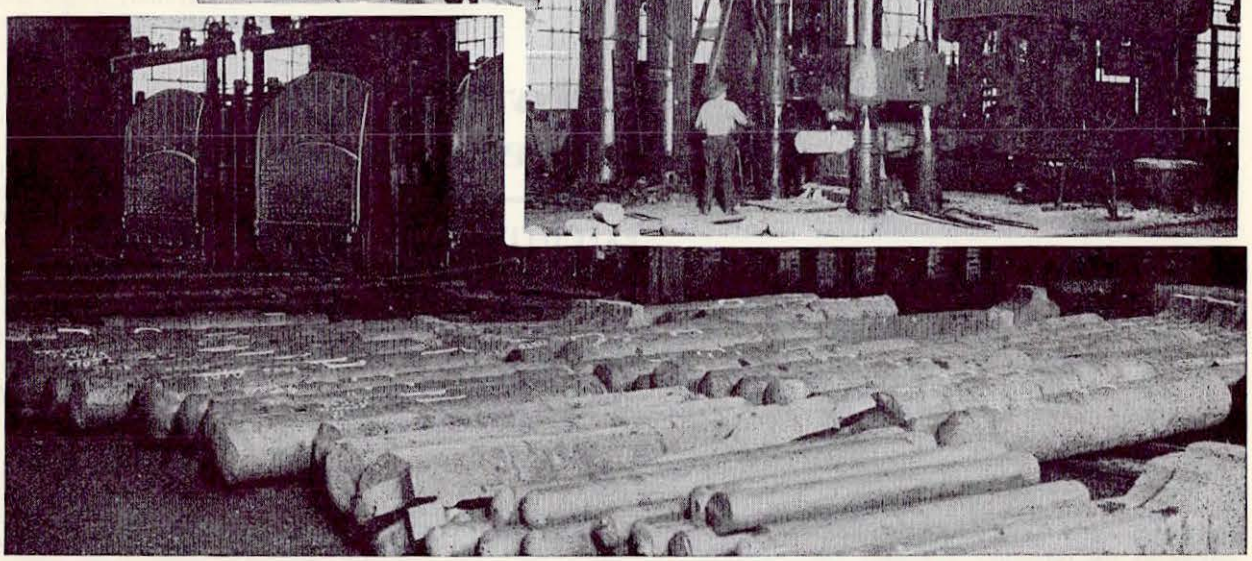

AMERICAN LOCOMOTIVE CO.

30. CHURCH ST. alco NEW YORK·N·Y·

ment mortgage bonds, to be delivered to the Illinois Central for advances.

LOUISVILLE & NASHVILLE.—*Abandonment.*—Examiner M. S. Jameson of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the branch line from Prattville Junction, Ala., to Prattville, 10 miles.

MAYO & COOK'S HAMMOCK.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $200,000 to be used in the construction of a line between Mayo, Fla., and Cook's Hammock, 12.5 miles. It has also applied to the Interstate Commerce Commission for a certificate authorizing construction of the line and for authority to issue 500 shares of no-par stock and $200,000 of first mortgage 6 per cent bonds. The Commission had granted a certificate in 1929 but the company was unable to complete the construction in the time allowed.

MISSISSIPPI CENTRAL.—*Note.*—The Interstate Commerce Commission has authorized this company to issue a promissory note for $150,000 to be delivered to the United States Lumber Company in payment for advances.

MOREHEAD & NORTH FORK.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a line from Four-Mile Point to Redwood, Ky., 20.219 miles.

PITTSBURG & SHAWMUT.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a 1.3 mile line extending from Tait, Pa., to Knoxdale.

READING.—*Bond Maturity Extended.*—The Interstate Commerce Commission has authorized this company to extend for ten years the maturity date of $2,644,000 of prior-lien mortgage bonds of the Philadelphia & Reading which fall due on October 1 and to assume obligation for interest and principal.

STANLEY, MERRILL & PHILLIPS.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon as to interstate and foreign commerce, its line from Polley, Wis., to Walrath, 22 miles.

ST. LOUIS - SAN FRANCISCO.—*Trustees appointed.*—Federal Judge John B. Faris, at St. Louis, Mo., has appointed James M. Kurn and John G. Lonsdale as trustees of the Frisco in accordance with an application of the Reconstruction Finance Corporation to facilitate presentation of a new plan for reorganization. Mr. Kurn and Mr. Lonsdale have been acting as receivers of the company.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon nine branch lines, totalling over 100 miles, which have been operated at a loss because of the diminution of traffic in territories served with hard-surface roads. The lines are: Deckerville, Ark., to Evadale, 18.1 miles; Olathe, Kan., to Stanley, 8.4 miles; Goltra, Mo., to Sligo, 5.4 miles; Kiersey, Okla., to Texas Junction, 9.24 miles; McDougal, Ark., to Tipperary, 8.9 miles; Wardell, Mo., to Fraily, 4.5 miles; Bangert, Mo., to De Camp, 12.8 miles; and Bono Branch Junction, Ark., to Algoa, 35.6 miles.

Average Prices of Stocks and of Bonds

	Sept. 26	Last week	Last year
Average price of 20 representative railway stocks..	41.21	46.41	29.81
Average price of 20 representative railway bonds..	68.27	69.20	65.70

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Valley & Siletz	$1,150,000	1927
Indian Valley	645,000	1927
Sabine & Neches Valley	95,000	1927
Greenville & Northern	450,000	1927
Uvalde & Northern	550,000	1927
Columbia & Cowlitz	690,000	1928
Camino, Placerville & Lake Tahoe	160,000	1927
Atlantic Port (used)	621,760	1927
Winchester & Western	425,000	1927

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—Preferred, $1.25, payable October 31 to holders of record October 4.

New London Northern.—$2.25, quarterly, payable October 1 to holders of record September 15.

Norfolk & Western.—Adjustment Preferred, $1.00, quarterly, payable November 18 to holders of record October 31.

Norwich & Westchester.—8 Per Cent Preferred, $2.00, quarterly, payable October 1 to holders of record September 15.

Philadelphia & Trenton.—$2.50, quarterly, payable October 10 to holders of record October 1.

Providence & Worcester.—$2.50, quarterly, payable October 2 to holders of record September 13.

Southern.—Mobile & Ohio Stk. Tr.—$2.00, payable October 2 to holders of record September 15.

Wheeling & Lake Erie.—7 Per Cent Prior Lien.—$7.00, payable September 27 to holders of record September 25. (Accumulated dividends.)

Railway Officers

EXECUTIVE

Edgar D. Hilleary, vice-president in charge of traffic of Reading has been elected also vice-president of the Central of New Jersey in charge of traffic with headquarters at Philadelphia, Pa.

J. M. Davis, auditor of the Santa Maria Valley, with headquarters at Santa Maria, Cal., has been appointed manager, in immediate charge and supervision of the accounting, operating and traffic departments of the road.

OPERATING

A. E. Knights, assistant superintendent on the Great Northern, with headquarters at Seattle, Wash., has been appointed superintendent of the Klamath division, with headquarters at Klamath Falls, Ore., to succeed **T. F. Dixon,** who has been transferred to the Butte division, at Great Falls, Mont., to replace **J. A. Frogner,** who has resigned.

J. C. Goodfellow, assistant division superintendent of the Southern Pacific, with headquarters at San Francisco, Cal., has been appointed superintendent of the Salt Lake division, with headquarters at Ogden, Utah, succeeding **C. M. Murphy. H. R. Hughes** has been appointed assistant superintendent of the Coast division, with headquarters at San Francisco, succeeding Mr. Goodfellow.

TRAFFIC

J. M. Simon, general freight agent on the Mobile & Ohio, has been appointed assistant general freight agent, with headquarters as before at St. Louis, Mo.

George L. Oliver, assistant general passenger agent of the Florida East Coast, with headquarters at St. Augustine, Fla., has been transferred to New York in the same capacity in connection with the announcement by that company that, effective October 1, New York representatives of the passenger traffic department will be located in the office of the Atlantic Coast Line at 8 West 40 Street, New York City, with Mr. Oliver in charge.

W. T. McNamara, general freight agent of the Litchfield & Madison, with headquarters at Edwardsville, Ill., has been promoted to the newly-created position of freight traffic manager, with headquarters at St. Louis, Mo., and the position of general freight agent has been abolished. **W. L. Schneider,** general agent at Chicago, has been promoted to the newly-created position of assistant traffic manager, with headquarters at Tulsa, Okla. **W. W. Baum** has been appointed general agent at Chicago to succeed Mr. Schneider.

E. R. Gardner, freight traffic manager of the Mobile & Ohio, has been appointed chief traffic officer, with headquarters as before at St. Louis, Mo., to succeed **Walter Shipley,** deceased. **E. B. Farrell,** assistant chief traffic officer, with headquarters at Mobile, Ala., has been appointed freight traffic manager at St. Louis, to succeed Mr. Gardner. **J. C. Meehan,** assistant to the freight traffic manager, at St. Louis, has been appointed to the newly-created position of general freight agent with the same headquarters, and the position of assistant to the freight traffic manager has been abolished.

ENGINEERING AND SIGNALING

C. O. Long, assistant division engineer of the Middle division of the Pennsylvania, with headquarters at Altoona, Pa., has been promoted to division engineer of the Logansport division, at Logansport, Ind., to replace **W. D. Supplee,** who has been appointed division engineer on the Buffalo division, at Buffalo, N. Y. Mr. Supplee replaces **D. Davis, Jr.,** who has been moved to the St. Louis division, with headquarters at Terre Haute, Ind., to replace **N. M. Lawrence,** who has been transferred to the Philadelphia Terminal division, at Philadelphia, Pa.,

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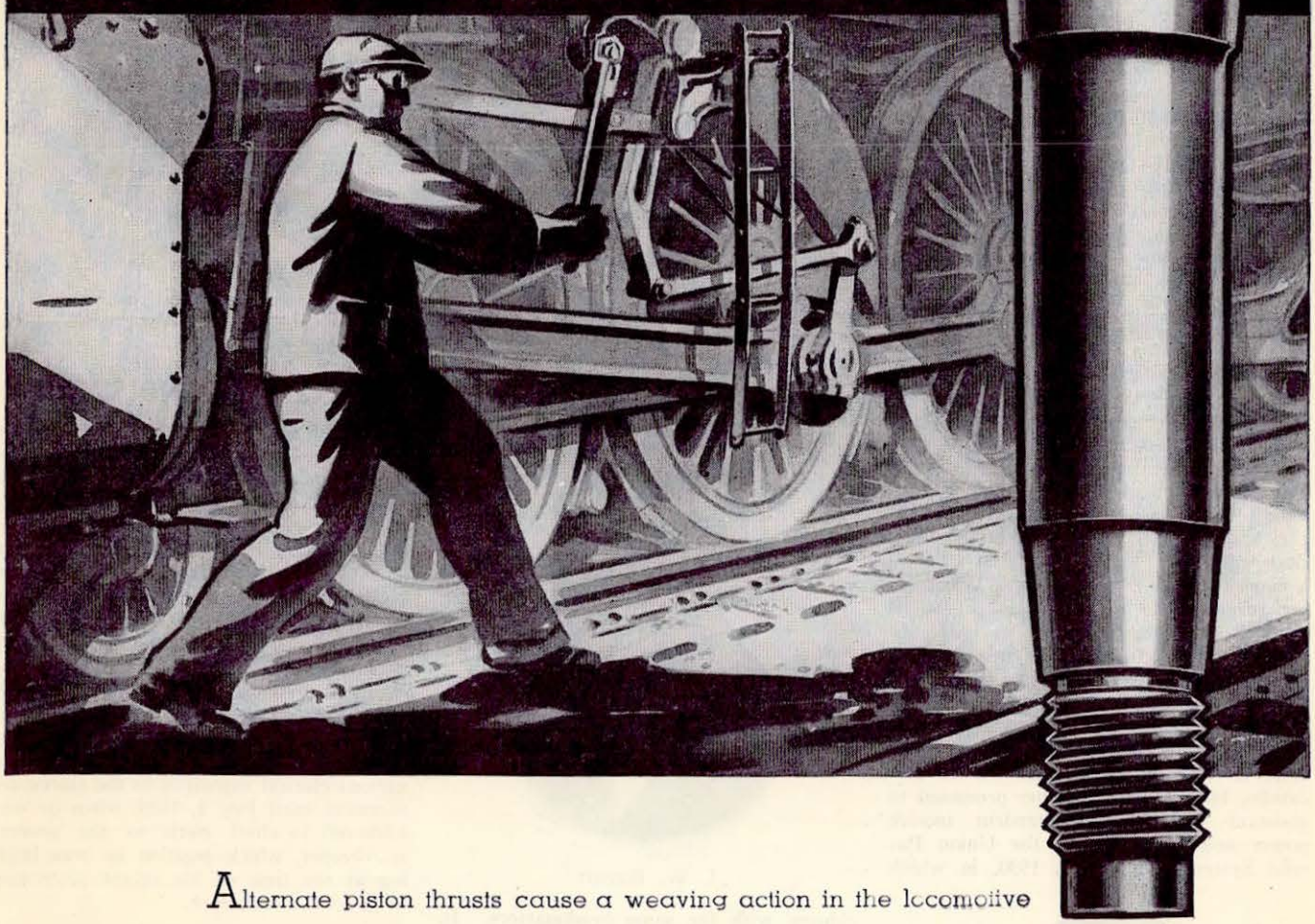
KEEP THE STRETCH OUT OF ENGINE BOLTS



Alternate piston thrusts cause a weaving action in the locomotive structure that soon causes trouble unless bolts are tight. » » » Stretching bolts open the way to endless mechanical troubles. » » » And stretching bolts were a common occurrence before Republic developed Agathon Alloy Engine Bolt Materials. » » » These materials possess the fatigue resistance that in the past made iron the favored material, but they have the necessary high tensile strength to hold without stretching. » » » Agathon Engine Bolt Steels are uniform and free from the slag pockets, seams and inclusions. » » » They are the modern engine bolt materials developed for modern railroading.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Money Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

CENTRAL ALLOY DIVISION, MASSILLON, OHIO

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

ACATHON STEELS
TRADE MARK

to relieve **W. W. Patchell,** who has been promoted to superintendent of passenger transportation at Pittsburgh, Pa. **P. X. Geary,** track supervisor on the New York division at New York, has been promoted to assistant division engineer of the Ft. Wayne division at Ft. Wayne, Ind., to succeed **F. G. Church,** who has been transferred to the Middle division at Altoona to replace Mr. Long.

MECHANICAL

J. W. Highleyman, who retired on September 1 as general superintendent motive power and machinery of the Union Pacific System, as noted in the *Railway Age* of September 23, was connected with the Union Pacific continuously for 40 years except for a short period during the World war when he was in army service. Mr. Highleyman was born in West Virginia in 1868, and after serving as a machinist on the Missouri Pacific at Sedalia, Mo., he entered the service of the Union Pacific in 1893 in the shops at Armstrong, Kan. In 1895 he was advanced to foreman and later served as master mechanic on the Kansas and Wyoming divisions. In 1918 he left railroad service to enter the mechanical department of the United States Army in France where he subsequently was advanced to the rank of major. Mr. Highleyman returned to the Union Pacific in 1919 as a master mechanic at Cheyenne, Wyo., being promoted to superintendent of shops with the same headquarters in 1922. In the following year he was promoted to assistant superintendent motive power and machinery of the Union Pacific Railroad, with headquarters at Omaha, Neb., then being transferred to the Oregon Short Line in 1928 with headquarters at Pocatello, Ida. He was further promoted to assistant general superintendent motive power and machinery on the Union Pacific System in October, 1930, in which

J. W. Highleyman

position he had jurisdiction over the Oregon Short Line, the Oregon-Washington Railroad & Navigation Company and the Los Angeles & Salt Lake, with headquarters at Pocatello. He held this position until October, 1931, when he was advanced to general superintendent of motive power and machinery of the system with headquarters at Omaha, which position he was holding at the time of his retirement.

J. W. Burnett, who has been appointed general superintendent motive power and machinery of the Union Pacific System, with headquarters at Omaha, Neb., has been in the service of the Union Pacific for 21 years. He was born at McCook, Neb., in 1890 and entered railway service in 1905 as a steam-hammer operator on the Chicago, Burlington & Quincy at McCook. In 1912 he went with the Union Pacific as a machinist apprentice at Cheyenne, Wyo., and in the following year he was advanced to foreman at Kearney, Neb., holding this position until 1917 when he was further advanced to district foreman at Laramie, Wyo. In 1921, Mr. Burnett, was promoted to master mechanic at Green River, Wyo., and in the following year he was transferred to Cheyenne. From August to December, 1928, he served as assistant superintendent of motive power and machinery at Omaha, and at the end of this period he was made superintendent of motive power and ma-

J. W. Burnett

chinery with the same headquarters. In 1930 Mr. Burnett's title was changed to assistant general superintendent motive power and machinery and in October, 1931, he was transferred to Pocatello, Ida., where he was located at the time of his recent promotion.

Emmett J. Cole, who has been appointed assistant general superintendent motive power and machinery in charge of the locomotive department of the Union Pacific System with headquarters at Omaha, Neb., as noted in the *Railway Age* of September 23, has been connected with the mechanical department of the Union Pacific for 25 years. He was born on November 17, 1894, at Cheyenne, Wyo., and entered the service of the Union Pacific on January 25, 1908, as a machinist apprentice at Cheyenne, then serving successively as a machinist, machine inspector, erecting gang foreman and district foreman. He was appointed superintendent of shops at Cheyenne on September 15, 1923, and on August 1, 1925, he was transferred to Omaha. On January 1, 1929, Mr. Cole was promoted to assistant to the general superintendent motive power and machinery of the Union Pacific System, which position he held until October, 1931, when he was made assistant general superin-

Emmett J. Cole

tendent motive power and machinery. He has now been given jurisdiction over the locomotive department.

PURCHASES AND STORES

Samuel A. Hayden, who has been appointed general storekeeper of the Missouri-Kansas-Texas, with headquarters at Parsons, Kan., as noted in the *Railway Age* for September 23, has been connected with the Katy for 22 years. He was born on April 18, 1896, at St. Paul, Kan., and after a public school education entered the service of the Katy on September 1, 1911, as a machinist apprentice in the back shop at Parsons. He was transferred to the stores department on September 1, 1913, as a storekeeper at Parsons, being appointed a clerk in the same department in June, 1914. Thereafter, Mr. Hayden served in various clerical capacities in the stores department until July 1, 1923, when he was advanced to chief clerk to the general storekeeper, which position he was holding at the time of his recent promotion to general storekeeper.

OBITUARY

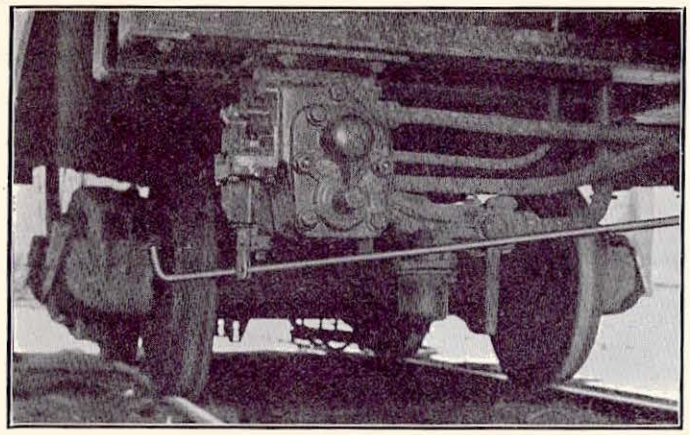
George P. Cave, general agent for the Chicago, Rock Island & Pacific at Seattle, Wash., died at the Maynard hospital, Seattle, on September 16.

Frank E. Herriman, retired president of the Clearfield Bituminous Coal Corporation and former coal traffic manager of the New York Central died at his home in New York on September 28.

Kemper Peabody, former general supervisor of buildings of the New York Central, Line Buffalo and East, who retired from that position in 1931, died at his home in New Rochelle, N. Y., on September 26, at the age of 72.

Thomas Price, former secretary of the Union Pacific, was killed near his estate in Waynesville, N. C., on September 24. Mr. Price entered the service of the Union Pacific in 1907, serving consecutively with that road as chief clerk and secretary to the president, assistant secretary, and secretary, from which position he was retired under the pension rules in May of this year.

Table of Operating Statistics of Railways begins on next left-hand page



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ONE of the purposes of the Emergency Transportation Act is to promote in its most economical form the free flow of commerce.

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WESTINGHOUSE AIR BRAKE COMPANY

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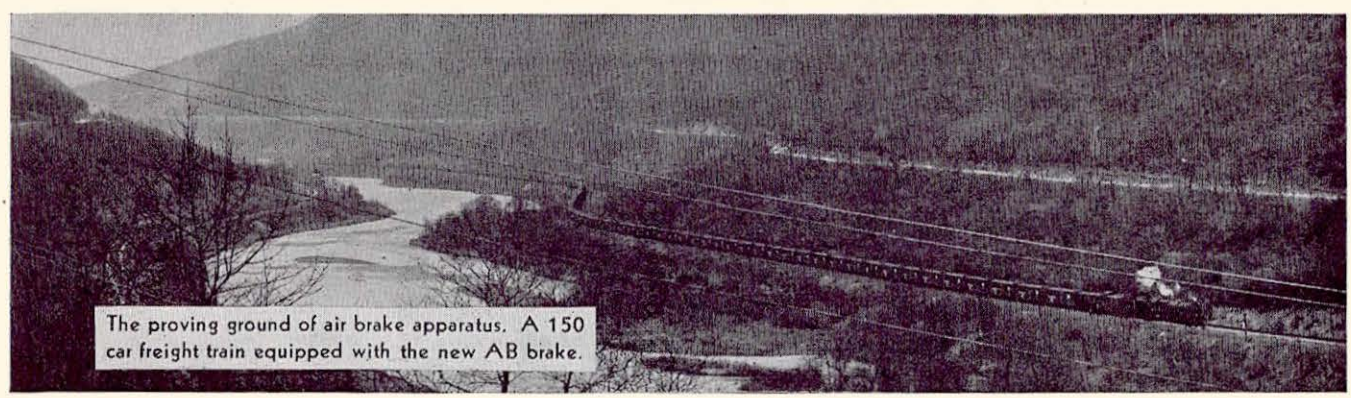

The proving ground of air brake apparatus. A 150 car freight train equipped with the new AB brake.

(1250)

Operating Statistics of Large Steam Railways—Selected Items for the Month of July, 1933,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross Excluding locomotives and tenders	Ton-miles (thousands): Net Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany....1933	402	124,885	130,340	9,449	3,510	67.5	180,501	59,982	56	49	46.7	9
1932	402	105,910	110,679	6,899	2,789	65.6	146,313	47,484	70	50	41.9	24
Boston & Maine....1933	2,052	256,033	286,823	27,110	9,038	67.1	473,423	172,942	126	162	56.3	11
1932	2,057	236,582	262,756	21,521	7,265	67.9	379,055	133,901	145	144	49.9	37
N. Y., New H. & Hartf....1933	2,044	357,019	433,942	23,324	11,710	64.3	629,498	220,517	217	142	39.5	38
1932	2,056	323,668	377,603	19,106	9,275	62.7	505,009	170,421	209	140	40.1	7
Great Lakes Region:												
Delaware & Hudson....1933	848	204,920	275,053	32,138	6,972	62.7	426,866	189,764	252	27	9.7	153
1932	848	201,194	251,917	22,266	5,636	59.8	351,123	155,181	250	26	9.3	161
Del., Lack. & Western....1933	998	331,697	368,363	49,136	11,101	66.2	628,178	244,159	205	69	25.1	67
1932	998	296,683	323,822	39,909	8,974	66.3	513,413	201,266	221	56	20.2	85
Erie (incl. Chi. & Erie)...1933	2,316	706,700	736,144	61,381	29,421	61.9	1,820,169	662,178	292	214	42.2	54
1932	2,316	649,260	681,888	42,111	25,347	59.7	1,586,872	534,570	366	133	26.7	146
Grand Trunk Western....1933	1,008	198,434	200,446	1,575	5,315	59.1	325,121	108,275	75	79	51.3	7
1932	1,023	167,542	168,720	1,000	3,628	58.4	219,928	69,539	94	57	38.0	34
Lehigh Valley....1933	1,341	374,260	393,338	36,394	11,580	62.9	703,971	273,624	172	152	46.9	14
1932	1,343	299,764	309,414	23,129	8,907	62.9	532,645	203,505	200	153	43.3	57
Michigan Central....1933	1,957	381,204	381,884	12,605	12,273	59.9	724,634	235,498	129	55	29.9	30
1932	2,115	308,169	308,395	7,097	8,617	60.5	494,542	155,090	132	70	34.6	49
New York Central....1933	6,428	1,425,050	1,522,117	108,877	54,718	60.5	3,458,771	1,437,239	540	632	53.9	36
1932	6,432	1,198,918	1,264,297	67,039	40,868	60.2	2,456,897	931,719	610	696	53.3	119
New York, Chi. & St. L...1933	1,660	513,365	545,757	6,159	15,182	60.6	920,294	329,904	122	76	38.3	6
1932	1,661	403,261	419,931	4,863	11,834	60.6	687,306	226,578	146	95	39.6	53
Pere Marquette....1933	2,254	323,966	335,628	3,628	7,578	59.8	483,372	185,809	122	55	31.0	17
1932	2,286	252,847	258,477	3,430	5,207	59.6	327,794	122,466	128	44	25.7	35
Pitts. & Lake Erie....1933	231	77,830	80,095	1,694	3,125	59.0	268,848	152,910	29	41	59.1	2
1932	235	46,416	47,829	1,738	1,831	55.5	155,311	84,643	37	48	56.5	17
Wabash....1933	2,453	526,536	534,715	11,404	16,594	62.4	968,204	314,243	172	173	50.1	25
1932	2,497	494,492	508,938	10,376	14,186	62.1	822,991	253,985	211	164	43.7	42
Central Eastern Region:												
Baltimore & Ohio....1933	6,282	1,399,933	1,728,599	203,322	43,649	59.5	3,044,598	1,375,954	694	606	46.6	105
1932	6,277	1,131,866	1,287,767	127,967	29,829	59.1	1,977,564	819,173	822	541	39.7	280
Big Four Lines....1933	2,655	613,636	636,516	24,825	18,544	61.2	1,191,865	529,683	235	179	43.2	28
1932	2,664	473,605	489,534	12,519	13,129	61.0	810,954	340,094	242	162	40.1	59
Central of New Jersey....1933	692	128,048	145,113	24,767	4,249	58.6	284,125	126,748	108	67	38.5	51
1932	692	126,061	137,788	19,189	3,664	55.4	253,573	112,450	118	60	33.9	59
Chicago & Eastern Ill....1933	939	177,324	178,426	2,663	3,696	61.9	235,822	97,618	57	113	66.6	18
1932	939	151,142	151,261	3,142	2,745	63.5	170,622	70,727	89	74	45.5	45
Elgin, Joliet & Eastern....1933	446	82,394	83,200	1,372	2,056	59.6	162,660	80,958	68	20	22.5	19
1932	447	54,810	54,870	737	1,173	56.9	89,466	41,421	81	9	9.7	41
Long Island....1933	396	26,750	27,537	12,329	285	50.9	21,352	8,156	30	21	41.2	2
1932	396	26,127	27,188	11,423	276	52.5	21,521	7,577	40	9	19.2	12
Pennsylvania System....1933	10,082	2,720,028	3,048,933	326,113	97,509	61.9	6,491,300	2,848,321	1,470	981	40.0	317
1932	10,528	2,278,574	2,515,835	237,315	74,962	61.2	4,918,759	2,040,644	2,079	441	17.5	1,056
Reading....1933	1,454	385,628	420,658	44,816	11,311	59.3	825,465	389,128	276	103	27.2	94
1932	1,453	325,720	349,521	34,560	8,533	59.1	597,658	273,891	287	112	28.1	127
Pocahontas Region:												
Chesapeake & Ohio....1933	3,144	858,538	907,185	39,861	38,766	54.2	3,346,430	1,799,468	518	170	24.8	207
1932	3,136	665,949	692,303	20,298	26,410	56.4	2,226,422	1,204,825	551	117	17.5	300
Norfolk & Western....1933	2,217	627,130	654,597	29,443	25,084	58.0	2,119,270	1,109,793	417	62	13.0	178
1932	2,258	476,669	491,097	20,062	16,534	59.9	1,332,558	696,570	429	60	12.2	225
Southern Region:												
Atlantic Coast Line....1933	5,144	489,167	490,115	6,845	9,714	62.9	512,185	173,728	365	129	26.1	123
1932	5,144	466,223	468,042	6,530	7,849	62.6	426,205	150,936	376	96	20.3	132
Central of Georgia....1933	1,904	235,076	237,169	4,185	5,446	69.3	285,704	102,936	100	42	29.6	..
1932	1,900	187,097	188,536	2,954	3,737	65.2	202,362	70,718	91	52	36.3	3
Ill. Cent. (incl. Y. & M. V.)....1933	6,658	1,300,679	1,319,317	22,992	30,611	60.0	1,985,497	782,278	595	346	36.7	16
1932	6,658	1,137,290	1,147,774	19,889	25,282	59.5	1,651,214	647,017	707	243	25.6	75
Louisville & Nashville....1933	5,121	955,612	1,036,781	28,371	22,448	59.4	1,565,545	746,037	318	376	54.1	20
1932	5,263	782,504	828,118	16,079	15,419	58.7	1,052,750	480,686	428	285	39.9	187
Seaboard Air Line....1933	4,361	443,700	464,086	3,831	10,179	64.2	572,097	205,111	229	64	21.8	37
1932	4,405	381,982	388,637	3,227	7,419	60.2	422,759	141,737	251	35	12.2	70
Southern....1933	6,602	1,210,711	1,226,504	20,150	28,918	64.5	1,583,143	569,835	711	207	22.5	204
1932	6,668	922,757	929,097	14,224	19,463	65.9	1,030,980	360,588	738	223	23.2	250
Northwestern Region:												
Chi. & North Western....1933	8,443	973,813	1,031,031	24,602	24,986	61.5	1,538,592	524,782	576	237	29.1	153
1932	8,443	820,979	855,311	17,969	18,587	60.9	1,110,152	353,010	637	170	21.1	296
Chicago Great Western....1933	1,463	214,576	215,820	15,139	6,833	58.5	441,979	159,223	63	36	36.2	4
1932	1,448	168,250	168,250	12,387	5,266	58.8	323,290	110,565	66	48	41.9	10
Chi., Milw., St. P. & Pac..1933	11,199	1,216,354	1,294,446	66,289	32,738	58.5	2,125,550	830,843	659	234	26.2	253
1932	11,246	1,049,326	1,097,088	49,599	24,528	59.1	1,560,511	593,259	752	156	17.2	396
Chi., St. P., Minneap. & Om....1933	1,681	225,337	237,431	9,383	4,865	67.2	298,626	116,582	131	25	16.2	61
1932	1,714	202,279	208,740	8,807	3,638	64.8	216,086	84,480	139	31	18.0	72
Great Northern....1933	8,424	598,070	603,432	16,812	19,074	62.0	1,277,625	563,165	466	145	23.8	150
1932	8,432	568,123	570,743	15,011	13,647	61.6	862,592	337,419	468	144	23.6	148
Minneap., St. P. & S. St. M....1933	4,291	321,444	324,710	3,269	7,297	65.0	418,371	174,687	127	45	26.3	10
1932	4,325	335,653	338,302	1,627	5,855	60.9	338,850	128,609	142	53	27.4	17
Northern Pacific....1933	6,416	634,807	693,710	49,182	18,509	62.0	1,155,813	428,032	370	155	29.5	49
1932	6,397	563,095	599,758	35,152	13,381	60.9	844,867	274,263	396	127	24.2	110
Oreg.-Wash. R. R. & Nav..1933	2,185	153,360	159,041	10,376	3,809	64.6	227,765	88,913	83	40	32.3	22
1932	2,186	134,096	137,657	6,116	2,867	70.8	153,947	58,078	94	38	28.7	42
Central Western Region:												
Alton....1933	952	192,232	199,482	1,502	4,202	56.1	282,695	89,577	57	42	42.0	1
1932	990	198,810	205,060	1,038	4,012	55.9	263,919	80,061	79	34	29.8	20
Atch., Top. & S. Fe (incl. P. & S. F.)....1933	11,586	1,318,505	1,423,887	61,711	36,881	63.2	2,268,534	761,835	642	286	30.8	206
1932	11,600	1,332,513	1,432,117	60,256	37,257	62.1	2,355,226	810,689	738	185	20.0	302
Chi., Burl. & Quincy....1933	9,157	1,072,665	1,104,896	29,521	27,920	60.4	1,705,050	714,005	424	131	23.6	31
1932	9,210	914,073	932,354	23,763	21,048	60.4	1,194,354	480,558	518	135	20.7	111
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)....1933	8,333	1,046,421	1,064,877	5,435	23,811	59.7	1,475,772	542,428	455	157	25.7	91
1932	8,342	1,001,205	1,024,647	4,738	22,372	62.7	1,345,705	511,315	514	151	22.7	144
Denver & R. G. Wn....1933	2,514	176,449	192,624	17,693	5,522	67.7	320,414	126,328	201	41	17.0	62
1932	2,514	167,923	179,531	17,455	4,803	65.8	276,870	99,557	213	33	13.4	92
Los Angeles & Salt Lake..1933	1,239	136,433	152,292	18,911	3,857	67.4	227,099	87,187	75	31	29.7	13
1932	1,240	131,835	145,479	15,286	3,708	67.3	214,835	79,719	79	29	26.5	21
Oregon Short Line....1933	2,477	217,974	231,222	18,184	5,696	63.6	333,901	123,693	119	67	36.2	36
1932	2,475	190,397	193,299	6,020	4,139	65.9	225,124	77,219	149	39	20.8	82
Southern Pacific—Pacific Lines....1933	8,879	1,069,096	1,139,708	118,985	33,934	60.5	2,116,799	647,223	518	385	42.6	155
1932	8,911	1,102,224	1,181,490	117,517	32,404	57.6	2,086,935	589,052	541	335	38.3	157
Union Pacific....1933	3,768	789,472	810,270	38,154	27,672	60.4	1,763,548	569,357	351	111	24.1	161
1932	3,768	793,508	813,511	34,840	26,245	53.8	1,725,596	497,723	378	84	18.1	186
Southwestern Region:												
Gulf, Colo. & S. Fe....1933	1,943	176,720	179,915	3,202	4,445	61.4	290,860	119,007	91	34	27.3	25
1932	1,943	181,924	188,217	3,678	4,390	62.6	288,188	125,480	109	20	15.3	43
Mo.-Kans.-Texas Lines....1933	3,282	347,626	349,851	4,425	8,712	60.6	517,346	184,110	167	65	28.1	85
1932	3,282	322,775	324,544	4,412	7,759	59.8	465,566	166,740	162	65	28.7	84
Missouri Pacific....1933	7,384	1,026,342	1,055,888	23,324	28,534	62.7	1,758,900	686,583	406	160	28.3	136
1932	7,409	937,260	957,880	21,489	22,762	63.2	1,378,075	513,833	484	138	22.2	232
St. Louis-San Francisco...1933	5,193	603,218	609,541	7,164	13,090	59.3	823,376	314,912	390	82	17.4	141
1932	5,193	549,997	553,726	6,260	11,301	60.3	698,681	273,392	420	85	16.8	154
St. Louis Southwestern Lines....1933	1,872	224,509	231,090	3,150	5,465	62.1	285,073	109,157	99	33	25.1	18
1932	1,902	183,647	187,325	3,288	4,551	70.3	238,872	76,740	112	29	20.6	37
Texas & New Orleans....1933	4,472	463,547	463,910	5,787	9,935	58.0	623,678	203,294	219	93	29.8	54
1932	4,588	459,378	459,888	7,719	9,118	59.4	546,269	165,727	234	71	23.4	66
Texas & Pacific....1933	1,946	247,538	247,557	1,193	7,501	60.3	468,833	155,876	177	61	25.5	78
1932	1,946	257,179	257,179	1,001	6,694	65.0	401,705	128,265	166	82	33.0	44

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Compared with July, 1932, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1933	4,373	3,441	7,814	34.4	23,841	1,445	480	17.1	248	21.5	4,816	147	42.8
1932	4,385	2,394	6,779	32.7	22,175	1,381	448	17.0	226	20.2	3,813	150	31.6
Boston & Maine.....1933	10,405	8,070	18,475	23.0	25,260	1,847	674	19.1	301	23.5	2,715	98	35.2
1932	11,367	6,090	17,457	15.3	22,220	1,615	571	18.4	250	19.9	2,118	102	31.7
N. Y., New H. & Hartf....1933	15,235	10,570	25,805	11.2	26,897	1,763	618	18.8	276	22.8	3,480	103	41.1
1932	16,414	8,646	25,060	7.9	24,010	1,560	527	18.4	219	19.0	2,674	106	36.7
Great Lakes Region:													
Delaware & Hudson.....1933	11,901	2,983	14,884	4.1	26,518	2,083	926	27.2	411	24.1	7,218	108	35.5
1932	12,916	2,173	15,089	3.4	24,727	1,745	771	27.5	332	20.2	5,902	118	32.0
Del., Lack. & Western.....1933	17,517	4,211	21,728	11.7	27,744	1,894	736	22.0	362	24.9	7,891	127	49.2
1932	20,229	2,986	23,215	7.9	25,247	1,731	678	22.4	280	18.8	6,504	115	42.4
Erie (incl. Chi. & Erie)...1933	33,054	13,331	46,385	6.6	41,514	2,576	937	22.5	461	33.1	9,223	91	50.8
1932	36,757	10,420	47,177	4.4	40,463	2,444	823	21.1	366	29.0	7,446	92	46.8
Grand Trunk Western.....1933	5,308	8,066	13,374	20.3	29,640	1,638	546	20.4	261	21.7	3,464	90	42.5
1932	5,335	6,783	12,118	13.0	24,556	1,313	415	19.2	185	16.5	2,193	101	36.3
Lehigh Valley.....1933	18,541	5,458	23,999	21.5	32,210	1,881	731	23.6	368	24.7	6,583	127	42.8
1932	23,213	3,735	26,948	15.0	30,166	1,777	679	22.8	244	16.9	4,887	120	30.4
Michigan Central.....1933	25,650	18,492	44,142	12.1	34,703	1,901	618	19.2	172	15.0	3,881	103	69.3
1932	24,622	15,005	39,627	7.1	30,080	1,605	503	18.0	126	11.6	2,365	107	50.4
New York Central.....1933	72,948	63,166	136,114	26.6	37,897	2,427	1,009	26.3	341	21.4	7,213	90	44.9
1932	87,312	57,558	144,870	14.5	32,477	2,049	777	22.8	207	15.1	4,673	97	32.9
New York, Chi. & St. L...1933	9,511	7,442	16,953	6.9	32,198	1,793	643	21.7	628	47.6	6,410	92	90.1
1932	16,172	5,757	21,929	12.6	29,755	1,704	562	19.1	333	28.7	4,402	93	56.9
Pere Marquette.....1933	12,132	4,435	16,567	2.9	25,774	1,492	574	24.5	362	24.7	2,659	83	61.8
1932	14,351	3,175	17,526	3.5	22,017	1,296	484	23.5	225	16.1	1,728	88	49.1
Pitts. & Lake Erie.....1933	16,791	9,562	26,353	28.2	48,766	3,454	1,965	48.9	187	6.5	21,336	87	37.6
1932	18,443	6,222	24,665	29.7	41,999	3,346	1,824	46.2	111	4.3	11,610	97	18.7
Wabash 1933	15,502	9,204	24,706	5.3	36,358	1,839	597	18.9	410	34.7	4,132	95	51.0
1932	19,452	6,547	25,999	8.7	33,526	1,664	514	17.9	315	28.3	3,282	96	44.7
Central Eastern Region:													
Baltimore & Ohio.....1933	90,296	24,732	115,028	20.1	27,316	2,175	983	31.5	386	20.6	7,065	136	47.9
1932	99,285	13,283	112,568	12.3	23,716	1,747	724	27.5	235	14.5	4,210	143	33.5
Big Four Lines.....1933	19,594	22,369	41,963	17.5	32,975	1,942	863	28.6	407	23.3	6,436	103	51.5
1932	23,796	15,455	39,251	15.4	29,975	1,712	718	25.9	280	17.7	4,119	105	40.1
Central of New Jersey....1933	16,469	6,078	22,547	29.7	26,315	2,219	990	29.8	181	10.4	5,909	129	31.4
1932	18,347	5,358	23,705	22.3	25,616	2,012	892	30.7	153	9.0	5,240	135	28.4
Chicago & Eastern Ill.....1933	6,050	2,743	8,793	19.8	23,388	1,330	551	26.4	358	21.9	3,354	115	34.5
1932	6,342	1,815	8,157	14.8	19,607	1,129	468	25.8	280	17.1	2,430	124	30.6
Elgin, Joliet & Eastern....1933	9,370	3,770	13,140	19.5	17,485	1,974	983	39.4	199	8.5	5,855	108	31.0
1932	9,675	3,815	13,490	9.7	14,595	1,632	756	35.3	99	4.9	2,989	115	19.9
Long Island 1933	767	3,548	4,315	1.7	5,828	798	305	28.6	61	4.2	664	275	25.0
1932	791	3,004	3,795	.9	5,888	824	290	27.5	64	4.5	617	301	25.4
Pennsylvania System 1933	245,182	58,811	303,993	11.9	32,952	2,386	1,047	29.2	302	16.7	9,114	111	44.4
1932	252,911	44,143	297,054	7.2	31,033	2,159	896	27.2	222	13.3	6,253	117	35.2
Reading 1933	36,581	8,496	45,077	24.9	26,501	2,141	1,009	34.4	278	13.6	8,634	134	39.6
1932	40,061	5,947	46,008	10.2	22,650	1,835	841	32.1	192	10.1	6,079	138	31.1
Pocahontas Region:													
Chesapeake & Ohio.....1933	45,324	10,788	56,112	2.1	53,841	3,898	2,096	46.4	1,034	41.1	18,463	67	44.4
1932	49,943	6,849	56,792	2.7	47,249	3,343	1,809	45.6	684	26.6	12,395	69	34.4
Norfolk & Western.....1933	35,517	4,827	40,344	4.0	51,127	3,379	1,770	44.2	887	34.5	16,145	95	46.0
1932	42,389	3,573	45,962	3.3	42,987	2,796	1,461	42.1	489	19.4	9,950	104	33.7
Southern Region:													
Atlantic Coast Line.....1933	25,543	3,732	29,275	27.2	19,254	1,047	355	17.9	191	17.0	1,089	115	32.5
1932	27,227	3,483	30,710	12.1	16,869	914	324	19.2	159	13.2	946	125	32.4
Central of Georgia.....1933	6,815	3,681	10,496	21.4	20,795	1,215	438	18.9	316	24.2	1,744	123	54.8
1932	7,586	2,061	9,647	20.9	19,548	1,082	378	18.9	236	19.2	1,201	125	43.2
Ill. Cent. (incl. Y. & M. V.).1933	53,437	14,651	68,088	30.6	25,871	1,527	601	25.6	371	24.2	3,790	125	46.0
1932	56,011	11,555	67,566	18.5	24,621	1,452	569	25.6	309	20.3	3,135	122	39.7
Louisville & Nashville.....1933	50,294	7,473	57,767	28.3	23,602	1,638	781	33.2	417	21.1	4,699	125	49.5
1932	54,684	6,063	60,747	18.4	21,014	1,345	614	31.2	255	13.9	2,946	134	38.2
Seaboard Air Line.....1933	12,275	4,019	16,294	8.0	21,438	1,289	462	20.2	406	31.4	1,517	119	51.5
1932	15,467	3,197	18,664	8.7	18,299	1,107	371	19.1	245	21.3	1,038	123	44.2
Southern 1933	31,147	18,584	49,731	21.5	21,659	1,308	471	19.7	370	29.1	2,784	138	43.8
1932	40,570	23,673	64,243	14.6	19,276	1,117	391	18.5	181	14.8	1,745	141	31.7
Northwestern Region:													
Chi. & North Western....1933	43,991	18,841	62,832	11.1	23,968	1,580	539	21.0	269	20.9	2,005	112	41.9
1932	46,779	15,232	62,011	8.1	20,420	1,352	430	19.0	184	15.9	1,349	119	34.9
Chicago Great Western....1933	3,804	3,240	7,044	7.9	35,577	2,060	742	23.3	729	53.5	3,510	116	75.8
1932	5,195	2,975	8,170	12.5	33,195	1,921	657	21.0	437	35.3	2,463	119	51.3
Chi., Milw., St. P. & Pac..1933	58,668	14,091	72,759	4.7	26,863	1,747	683	25.4	368	24.8	2,393	108	49.2
1932	64,895	10,830	75,725	4.1	23,248	1,487	565	24.2	253	17.7	1,702	115	40.7
Chi., St. P., Minneap. & Om. 1933	2,041	6,696	8,737	11.1	19,501	1,325	517	24.0	430	26.7	2,238	101	51.0
1932	2,341	7,099	9,440	8.6	15,653	1,068	418	23.2	289	19.2	1,590	115	41.3
Great Northern.....1933	42,871	8,850	51,721	7.7	32,846	2,136	942	29.5	351	19.2	2,157	104	32.8
1932	44,975	6,761	51,736	6.1	23,838	1,518	594	24.7	210	13.8	1,291	120	30.9
Minneap., St. P. & S. St. M. 1933	18,899	3,084	21,983	5.1	20,386	1,302	543	23.9	257	16.5	1,313	97	61.5
1932	21,262	2,436	23,698	4.1	16,444	1,010	383	22.0	175	13.1	959	104	56.2
Northern Pacific.....1933	41,328	4,163	45,491	13.0	29,781	1,821	674	23.1	304	21.2	2,152	138	45.6
1932	44,035	3,623	47,658	11.0	25,412	1,500	487	20.5	186	14.9	1,383	140	39.2
Oreg.-Wash. R. R. & Nav..1933	7,978	2,887	10,865	6.9	23,716	1,485	580	23.3	264	17.5	1,313	137	44.3
1932	9,499	1,800	11,299	12.9	18,905	1,148	433	20.3	166	11.6	857	152	35.2
Central Western Region:													
Alton 1933	3,214	6,224	9,438	16.7	28,622	1,471	466	21.3	306	25.6	3,037	104	65.5
1932	5,176	4,529	9,705	13.1	27,138	1,327	403	20.0	266	23.8	2,608	104	59.0
Atch., Top. & S. Fe (incl. P. & S. F.) 1933	67,457	8,317	75,774	13.1	32,294	1,721	578	20.7	324	24.9	2,121	101	51.6
1932	72,070	8,423	80,493	10.0	31,616	1,768	608	21.8	325	24.1	2,255	95	52.1
Chi., Burl. & Quincy.....1933	39,605	13,300	52,905	9.9	26,367	1,590	666	25.6	435	28.2	2,515	108	65.9
1932	46,576	11,209	57,785	7.4	22,051	1,307	526	22.8	268	19.4	1,683	117	47.3
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf) 1933	34,477	11,153	45,630	21.5	23,742	1,410	518	22.8	383	28.2	2,100	122	56.4
1932	43,096	8,971	52,067	15.8	22,926	1,344	511	22.9	317	22.1	1,977	124	49.9
Denver & R. G. Wn.....1933	14,141	2,786	16,927	4.1	28,358	1,816	716	22.8	241	15.5	1,621	150	28.1
1932	14,668	2,713	17,381	3.4	25,751	1,649	593	20.7	185	13.6	1,278	155	25.9
Los Angeles & Salt Lake..1933	4,215	917	5,132	8.9	29,925	1,665	639	22.6	548	36.0	2,269	137	52.0
1932	4,445	936	5,381	6.4	27,610	1,630	605	21.5	478	33.0	2,074	136	48.2
Oregon Short Line.....1933	9,803	2,890	12,693	20.2	27,883	1,532	567	21.7	314	22.8	1,611	110	43.4
1932	9,554	2,089	11,643	11.4	21,593	1,182	406	18.7	214	17.4	1,006	116	34.1
Southern Pacific—Pacific Lines 1933	38,920	22,230	61,150	13.7	31,887	1,980	605	19.1	341	29.6	2,351	100	44.9
1932	44,634	22,665	67,299	13.6	30,133	1,893	534	18.2	282	27.0	2,132	105	47.8
Union Pacific.....1933	24,581	8,110	32,691	19.5	49,418	2,234	721	20.6	562	45.2	4,875	98	59.2
1932	25,451	8,259	33,710	14.6	38,846	2,175	627	19.0	476	46.7	4,261	98	59.2
Southwestern Region:													
Gulf, Colo. & S. Fe.....1933	11,168	1,417	12,585	8.0	27,839	1,646	673	26.8	305	18.6	1,975	98	47.1
1932	9,846	2,075	11,921	5.9	26,763	1,584	690	28.6	340	19.0	2,083	98	48.1
Mo.-Kans.-Texas Lines.....1933	10,140	2,670	12,810	7.7	26,476	1,488	530	21.1	464	36.2	1,810	83	49.3
1932	12,410	2,606	15,016	4.0	24,859	1,442	517	21.5	358	27.9	1,639	82	46.7
Missouri Pacific.....1933	25,158	18,555	43,713	13.7	29,822	1,714	669	24.1	507	33.6	2,999	115	61.5
1932	31,849	12,070	43,919	12.5	25,701	1,470	548	22.6	377	26.5	2,237	121	50.8
St. Louis-San Francisco...1933	24,350	4,808	29,158	8.3	23,357	1,365	522	24.1	348	24.4	1,956	126	42.1
1932	29,460	4,929	34,389	5.5	21,247	1,270	497	24.2	256	17.6	1,698	121	35.8
St. Louis Southwestern Lines 1933	4,635	3,276	7,911	11.8	23,034	1,270	486	20.0	445	35.9	1,881	96	57.4
1932	5,924	2,368	8,292	10.7	24,720	1,301	418	16.9	299	25.2	1,302	97	43.5
Texas & New Orleans.....1933	8,615	10,275	18,890	8.0	23,539	1,345	439	20.5	347	29.2	1,466	87	48.6
1932	11,822	10,518	22,340	9.2	20,700	1,189	361	18.2	239	22.2	1,165	91	49.4
Texas & Pacific.....1933	4,386	4,575	8,961	7.3	30,310	1,894	630	20.8	561	44.8	2,584	82	33.8
1932	6,204	3,569	9,773	11.9	26,440	1,562	499	19.2	423	34.0	2,127	82	33.6

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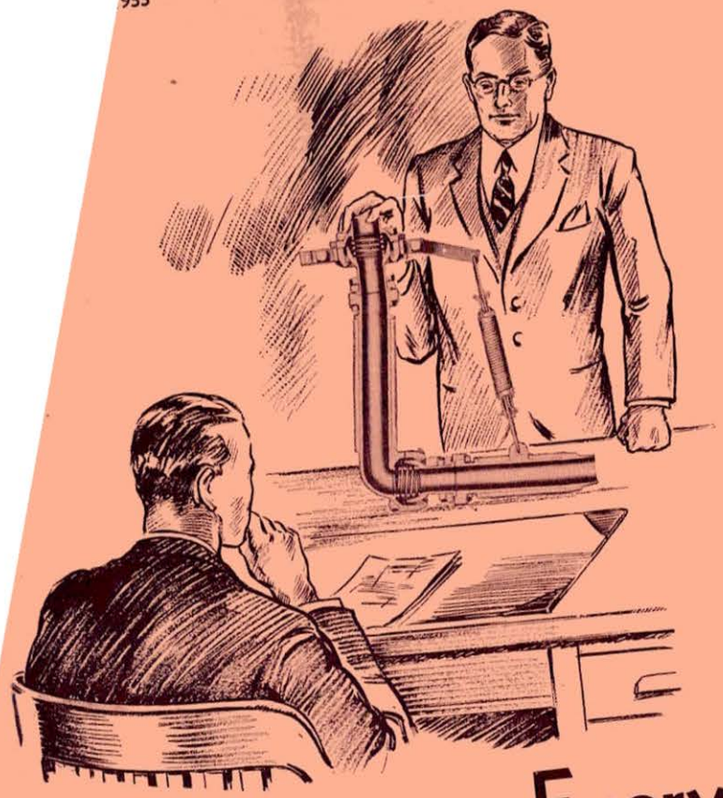

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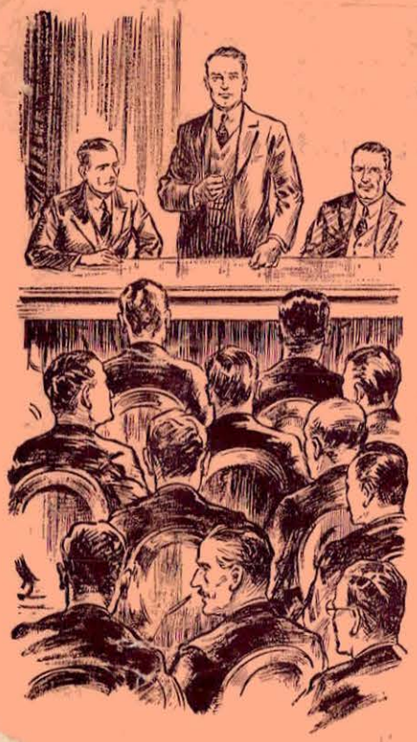
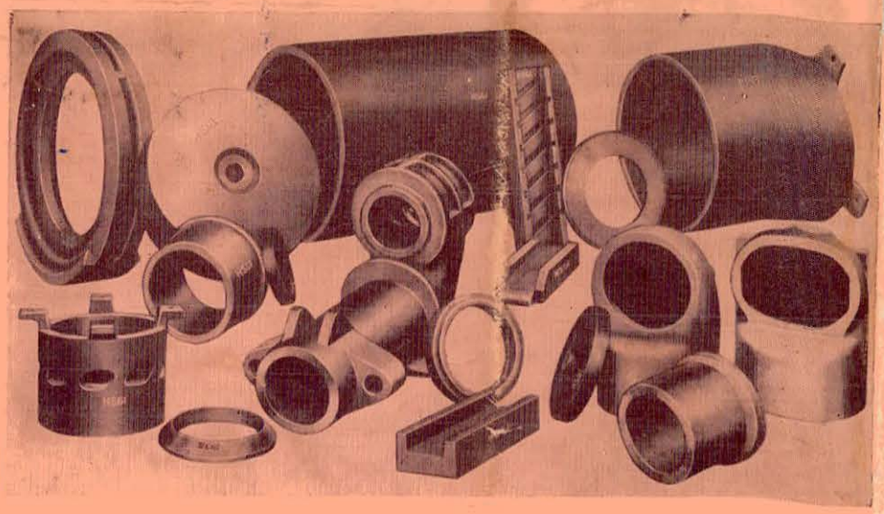
Winnipeg—Vancouver

BARCO STEAM HEAT CONNECTIONS





MATERIALS *versus* MAINTENANCE

EVERY bit of evidence compiled on this subject proves that the cost of locomotive maintenance can be controlled and kept to a minimum by the use of quality materials.

Application of HUNT-SPILLER *Air Furnace* GUN IRON wearing parts has helped many railroads to reduce the cost of running and classified repairs.

These railroads report large increases in the mileage between renewal of parts—marked reduction in road failures—fewer items on the daily work reports and lower shopping costs.

The huge savings in locomotive maintenance alone justify complete standardization—but that is not all—the annual bill for locomotive fuel will be considerably less after the application of H S G I wearing parts.

H S G I
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
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HUNT-SPILLER *Air Furnace* GUN IRON